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Improvements at river station:

New engine house and pit, 1369 cu. yds. excavation at 30 cents	$410.70	
The price should be 20 cents, or	273.80	
An over-charge of		$136.90
We cannot ascertain the quantity of the earth excavation, neither of the rock excavation.		
308 yards rock excavation at $1.87½	$577.50	
This charge should be $1.00 instead of $1 87½ cents or	308.00	
An over-charge of		$269.50
85,000 common brick in cement at $18.00	1530.00	
The price of $18.00 is excessive and $13.00 is a fair price for it. 85,000 brick at $13.00	1105.00	
An over-charge of		$425.00
36,000 vitrified brick in cement at $26.00	900.00	
The price charged is excessive and $19.00 is a fair price for it, or	684.00	
An over-charge of		$216.00

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278.3 rock excavations (cu. yds.) at $1.75	$487.03	
This charge is excessive, and the charge should be $1.00 instead of $1.75 or	278.30	
An over-charge of		$208.73
Replacing macadam, 13,853 ft. at 6 cents	831.18	
This charge should be 5 cents instead of 6 cents or	682.65	
An over-charge of		$148.53

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High service pump station and filter plant:

62,000 common brick in lime mortar at $13	806.00	
Instead of $13.00 it should be $8.00 or	496.00	
An over-charge of		$310.00

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90,000 vitrified brick at $20.00	$1800.00	
This price should be $18.00 instead of $20.00 or	1620.00	
An over-charge of		$180.00
46,000 vitrified brick in cement at $25	1150.00	
The price should be $20 instead of $25 per thousand in settling basin, or	920.00	
An over-charge of		$230.00
35,000 common brick in chimney stack at $20.00	660.00	
This price should be $15.00 per thousand instead of $20.00 or	525.00	
An over-charge of		$135.00
15,000 vitrified brick in chimney stack at $27.50	412.50	
The price should be $23. instead of $27.50 or	345.00	
An over-charge of		$67.50
28 marble window sills set at $4.00	112.00	
This charge should be $3.00 instead of $4.00 or	84.00	
An over-charge of		$28.00

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1838	1 outside door and frame 5′ *by* 7″ x 8′ x 0′ with plate glass panels	$20.00	
	This charge should be	18.00	
	An over-charge of		$2.00
	Hardware in doors and windows	$95.00	
	This charge should be	80.00	
	An over-charge of		$15.00
	348 sq. ft. concrete flooring in coal shed at $.16 2/3 cents laid	$58.00	
	This charge should be 13 cents or	45.24	
	An over-charge of		$12.76
	580 sq. ft. do. in Boiler room at 16 2/3 cents.	$96.67	
	This charge should be at 13 cents or	75.40	
	An over-charge of		$21.27
	655 sq. ft. in basement pump room at 16 2/3 cents	$109.17	
	This price should be 13 cents or	85.15	
	An over-charge of		$24.02

1200 feet in joists pump room floor at $16.00.	$19.20	
This price should be at $14.00 or.....	16.80	
An over-charge of		$2.40

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1400 feet under floor at $16.00.....	$22.40	
This price should be at $14.00 or.....	19.60	
An over-charge of		$2.80
1100 feet match flooring at $26.00.....	$28.60	
This charge should be at $25.00 or.....	27.50	
An over-charge of		$1.10
Stair-way Boiler House to Pump Room say..	$50.00	
Should be	22.00	
An over-charge of		$28.00
Stair-way to front entrance filter house		
1839 and stairs to basement	$100.00	
This charge should be.....	65.00	
An over-charge of		$35.00
Carpenter work and painting	$70.00	
Should be	35.00	
An over-charge of		$35.00
8000 feet timber roofing, ventilator top &c.		
at $26.00	$208.00	
This charge should be $24.00 or.....	192.00	
An over-charge of		$16.00
4800 feet purlines at $26.00.....	$124.80	
Should be at $20.00 or	96.00	
An over-charge of		$28.80
1200 feet wall placed at $26.00.....	$31.20	
Should be at $18.00 or	21.60	
An over-charge of		$9.60
7200 feet lumber and rafters ridge plates &c.		
at $26.00	$187.20	
Should be at $18.00	129.60	
An over-charge of		$57.60
700 feet lumber ventilator tops at $26.00....	$18.20	
Should be at $20.00	14.00	
An over-charge of		$4.20

17,500 feet roofing boards at $26,00.....	$455.00	
Should be at $20.00	350.00	
An over-charge of		$105.00
Carpenter work including mouldings and trimmings	$700.00	
Should be	580.00	
An over-charge of		$120.00
Painting and oiling	$350.00	
Should be	300.00	
An over-charge of		$50.00

1840 (Page 54.)

Filter station:

182 yds. cement concrete floor at $2.00.....	$364.00	
Should be $1.50 instead of $2.00.....	273.00	
An over-charge of		$91.00
12,000 common brick in cement at $15.00...	$180.00	
Should be at $12.00.....	144.00	
An over-charge of		$36.00

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9000 brick in cement at $18.00.....	$162.00	
Should be at $14.00.....	126.00	
An over-charge of		$36.00

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415 yards cement in granolithic floor at $1.50 a yard	$622.50	
Should be at $1.25 instead of $1.50.....	518.75	
An over-charge of		$103.75

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Foundations for Worthington Engine 2750 brick in cement at $18.00.....	$49.50	
Should be at $14.00.....	38.50	
An over-charge of		$11.00

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River Station, New Engine House and pit		
35,000 common brick in cement at $15.00	$525.00	
Should be at $12.00	420.00	
An over-charge of		$105.00
31,000 common brick in cement, retaining wall at $15.00	$465.00	
Should be at $12.00	372.00	
An over-charge of		$93.00
32,000 common brick in cement walls		
1841 of engine house at $18.00	$576.00	
Should be at $14.00 instead of $18.00.	448.00	
An over-charge of		$128.00
6000 vitrified brick in outside wall in cement at $25.00	$150.00	
Should be at $20.00	120.00	
An over-charge of		$30.00
32,000 common brick in cement in wall of office and work-shop at $15.00	$480.00	
Should be at $12.00	384.00	
An over-charge of		$96.00
105 yards cement floor in engine house basement at $1.50 a yard	$157.50	
Should be at $1.25	131.25	
An over-charge of		$26.25

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27000 common brick in lime mortar in walls of engine room, office and shop above at $13.00	351.00	
Should be at $8.00	216.00	
An over-charge of		$135.00
10,500 vitrified brick in lime, walls and engine room, office and shop	210.00	
Should be at $16.00	168.00	
An over-charge of		$42.00
13 window sills at $4.00	52.00	
Should be at $3.50	45.50	
An over-charge of		$6.50

3300 feet timber of office, work-shop and pump room at $28.00	84.00	
Should be at $24.00	79.20	
An over-charge of		$4.80
4700 feet lumber in upper and under floors at $28.00	131.60	
1842 Should be at $24.00	112.80	
An over-charge of		$18.80

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Stair-way pump room to basement	$15.00	
Should be at	10.00	
An over-charge of		$5.00
Carpenter work and hardware say	$140.00	
Should be	120.00	
An over-charge of		$20.00
Roofing, including ventilator top, cupola &c. at $28.00 4300 feet	$120.40	
Should be at $20.00	86.00	
An over-charge of		$34.40
3200 feet match roof at $28.00	$89.60	
Should be at $24.00	76.80	
An over-charge of		$12.80
Carpenter work, mouldings and trimmings	$130.00	
Should be	112.50	
An over-charge of		$17.50
42 yards cement floor around pump house at $1.50	$63.00	
Should be at $1.25	52.50	
An over-charge of		$10.50

Re-building old pump house:

16000 brick in lime at $13	$208.00	
Should be at $8.00	128.00	
An over-charge of		$80.00
2000 feet lumber for purlines at $28.00	$56.00	
Should be	40.00	
An over-charge of		$16.00

1850 1¼ match roofing at $28.00.....	$51.80	
Should be at $26.00	44.40	
An over-charge of		$7.40
1843 Hardware, Nails and Iron work.....	$40.00	
Should be	32.00	
An over-charge of		$8.00

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Rock Excavation 10 yards at $1.75.....	$17.50	
Should be at $1.00	10.00	
An over-charge of		$7.50
Boiler house rebuilt:		
100 yards of excavation at 30 cents.....	$30.00	
Should be at 20 cents.....	20.00	
An over-charge of		$10.00
300 yards rock excavation at $1 87½ cents..	562.50	
Should be at $1.00	300.00	
An over-charge of		$262.50
22000 brick in cement at $15.00.....	$330.00	
Should be at $12.00	264.00	
An over-charge of		$66.00
32,000 brick in lime at $13.00.....	$416.00	
Should be at $8.00	256.00	
An over-charge of		$160.00
7 window sills at $4.00 each.....	$28.00	
Should be at $3.00	21.00	
An over-charge of		$7.00
4 windows and frames 12 by 18 *by* 6 lts....	$32.00	
Should be at $6.00	24.00	
An over-charge of		$8.00
2 windows 21 by 18 2 lights at $7.00.....	$14.00	
Should be at $5.00	10.00	
An over-charge of		$4.00
1 window 18 by 24 4 lights	$8.00	
Should be at $6.....	6.00	
An over-charge of		$2.00

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	1 door and frames 5 *by* 6 by 8.....	$10.00	
1844	1 door 9 by 9.....	16.00	
	2 doors (Page 61) $10 each.....	20.00	
		$46.00	
	Allow	38.00	
	An over-charge of $2.00 each.....		$8.00

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86½ yards cement concrete floor at $1.50..	129.75	
Should be at $1.25	108.12	
An over-charge of		$21.63
2200 feet lumber in rafters and purlines at $28.00	$61.60	
Should be at $16.00	35.20	
An over-charge of		$26.40
2800 feet match roofing at $28.00.....	$78.40	
Should be at $24.00.....	67.20	
An over-charge of		$11.20
Carpenter work including mouldings, trimmings &c.	$95.00	
Should be	60.00	
An over-charge of		$35.00
Coal chute:		
24,000 common brick in foundation in cement at $15.00	$360.00	
Should be at $12.00.....	288.00	
An over-charge of		$72.00

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7800 feet lumber at $16.00.....	$124.80	
Should be at $14.00	109.20	
An over-charge of		$15.60
80 yards brick paving in cement at $1.20....	$96.00	
Should be at 75 cents per yard.....	60.00	
An over-charge of		$36.00

3600 feet lumber at $16.00	$57.60	
Should be at $14.00	50.40	
An over-charge of		$7.20
1845 Carpenter Work, Hardware, Painting say	$80.00	
Should be carpenter work $36.00 Hardware $5 Painting $10.00, total	51.00	
An over-charge of		$29.00
Extra labor, upper end of chute	$20.00	
Should be	15.00	
An over-charge of		$5.00

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Rock work on 73.14 cu. yards at $1.75	$128.00	
Should be at $1.00 per cu. yd.	73.14	
An over-charge of		$54.86
Replacing macadam &c. 3657 feet at 6 cents	$219.42	
Should be at 5 cents	182.85	
An over-charge of		$36.57

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Filtration plant:

2000 cu. yds. moved in grading at 20 cents	$400.00	
We cannot ascertain if this quantity is correct.		
900 yards sodding at 10 cents	90.00	
Should be at 7 cents	63.00	
An over-charge of		$27.00
800 lin. ft. fence at 35 cents	$280.00	
Should be at 25 cents	200.00	
An over-charge of		$80.00

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63.25 cu. yds. rock work at $1.75	$110.69	
Should be at $1.00	63.25	
An over-charge of		$47.44
Replacing 25.51 feet at 6 cents	$153.06	
Should be at 5 cents	127.55	
An over-charge of		$25.51

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Additional sodding 150 yards at 10 cents....	$15.00	
Should be at 7 cents	10.50	
An over-charge of		$4.50

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River station:

Rock work on 3525.4 feet 35.25 cu. yds. at $1.75	$61.68	
Should be at $1.00	35.25	
An over-charge of		$26.43
Replacing 1763 feet macadam at 6 cents....	$105.78	
Should be at 5 cents	89.15	
An over-charge of		$15.63

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74.73 cu. yds. rock work at $1.75.....	$130.73	
Should be at $1.00	74.73	
An over-charge of		$56.00
Replacing macadam &c. 37337 feet at 6 cents	$224.22	
Should be at 5 cents.....	186.85	
An over-charge of		$37.37

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Coal chute:

50 yards earth excavation at 30 cents.....	$15.00	
Should be at 20 cents	10.00	
An over-charge of		$5.00

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18000 brick in cement at $15.00.....	$270.00	
Should be at $12.00	216.00	
An over-charge of		$54.00
1500 feet lumber at $16.00.....	$24.00	
Should be at $14.00	21.00	
An over-charge of		$3.00

1847 Fence around Craig street lot 350 feet of 7′ picket fence at 50 cents per running foot	$175.00	
Should be at 35 cents including painting	122.50	
An over-charge of		$52.50

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Extension to settling basin:

260 cu. yards earth excavation and regrading at 30 cents	$78.00	
Should be at 20 cents	52.00	
An over-charge of		$26.00
103.6 cu. yds. cement concrete at $7.50	$777.00	
Should be at $6.50	673.40	
An over-charge of		$103.60
223 sq. yds. plastering (cement) at $1	$223.00	
Should be at 75 cents	167.25	
An over-charge of		$55.75
Lumber for frames, forms, &c. at $1.00 per yard of concrete	$103.60	
Should be at 80 cents per cu. yd	82.88	
An over-charge of		$20.72
98 1/3 yards cement floor at $2.00	$196.67	
Should be at $1.50 instead of $2.00	147.50	
An over-charge of		49.17
8000 brick in cement at $18.00	$144.00	
Should be at $14.00	112.00	
An over-charge of		$32.00

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River station:

Cutting tunnel between pits say	$200.00	
We find this price excessive. $180.00 would cover this cost	180.00	
An over-charge of		$20.00
Taking down inner course of brick in pumping pit, including staging &c	$150.00	
1848 This price is excessive. $108.00 would be a fair price	108.00	
An over-charge of		$42.00

11,500 enameled brick at $75.00	$862.50	
Hauling, handling and laying in cement $36.00	414.00	
The price for handling and laying is excessive and did not cost over $17.00 instead of $36.00 as reported, or	195.50	
An over-charge of		$218.50
20,000 common brick, backing for retaining wall of tunnel, in cement at $18.00	$360.00	
Should be at $14.00	280.00	
An over-charge of		$80.00
400 sq. ft. cement floor in pit at 16 2/3 cents	$66.67	
Should be at 13 cents	52.00	
An over-charge of		$14.67

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Railing around pit	$75.00	
This railing did not cost, erected over $64.50	64.50	
An over-charge of		$11.50
Cement Floor around pit, 400 feet at 16 2/3 cents	$66.67	
Should be at 13 cents	52.00	
An over-charge of		$14.67
3000 brick in lime at $13.00	$39.00	
Should be at $8.00	24.00	
An over-charge of		$15.00
Removing and rebuilding brick laboratory	$200.00	
We find the price of $200 excessive. 150.00 would cover the cost. We allow	150.00	
An over-charge of		$50.00
1849 Boiler house extension:		
190 yards of earth excavation at 30 cents	$57.00	
Should be at 20 cents	38.00	
An over-charge of		$19.00
14500 brick in foundation at $15.00	$217.50	
Should be at $12.00	174.00	
An over-charge of		$43.50
18000 brick in lime at $13.00	$234.00	
Should be at $8.00	144.00	
An over-charge of		$90.00

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3 door- and frames 5 *by* 6 by 8 at $10.....	$30.00	
Should be at $8.00	24.00	
An over-charge of		$6.00
1 Door and frame 3 *by* 6 by 7 *by* 6.....	$7.50	
Should be	5.00	
An over-charge of		$2.50
34 yards of cement flooring at $1.50.....	$51.00	
Should be at $1.25	42.50	
An over-charge of		$8.50
50 yards old boiler house floor at $1.50.....	$75.00	
Should be at $1.25	62.50	
An over-charge of		$12.50
1800 feet lumber, rafters and purlines at $30	54.00	
Should be at $20.00	36.00	
An over-charge of		$18.00
2300 feet of 1¼ roofing at $30.00.....	$69.00	
Should be at $24.00	55.20	
An over-charge of		$13.80
Carpenter work, including mouldings and trimmings	$80.00	
Should be	64.50	
An over-charge of		$15.50
1850 Tool and storage house:		
13000 brick in cement at $15.00.....	$195.00	
Should be at $12.00	156.00	
An ov-r-charge of		$39.00
450 feet lumber, rafters and purlines, at $16.00	$7.20	
Should be at $14.00	6.30	
An over-charge of		$.90
600 feet boards at $16.00	$9.60	
Should be at $14.00	8.40	
An over-charge of		$1.20

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Foundation for Worthington engine:		
10500 brick in cement at $18.00.....	$189.00	
Should be at $14.00	142.00	
An over-charge of		$47.00

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Stair-way from Front street	$30.00	
The price set at $30.00 is excessive.		
It should be	15.00	
An over-charge of		$15.00
2500 feet lumber for stairs at $16.00.....	$40.00	
Should be at $14.00	35.00	
An over-charge of		$5.00
3500 cu. yards of earth moved in grading at 20 cents	$700.00	
Should not exceed 15 cents	525.00	
An over-charge of		$175.00
500 yards sodding at 10 cents	$50.00	
Should be at 7 cents	35.00	
An over-charge of		$15.00
Grass Seed	$15.00	
1851 This seems an excessive price for grass seed.		
Allow	7.50	
Probably an over-charge of		$7.50
Intake tower:		
5000 feet lumber for coffer dam at $16.00....	$80.00	
Should be at $14.00	70.00	
An over-charge of		$10.00
Pumping water 60 days at $2.50 per day....	$150.00	
We cannot ascertain if this pumping is correct or not. We learn from the engineer that this pumping was done by steam pipe from the boiler.		
Excavating 800 yards of earth at 50 cents coffer dam foundation	$400.00	
This price seems to be excessive, but we cannot ascertain the cost, not knowing the conditions under which it was done.		
Excavating 135 yards of rock in water at $3.50 equals	$472.50	
This price seems to be very excessive, but we are in the same position as on the last item.		

460 yards cement, concrete at $9.00	$4140.00	
This price is excessive and we allow $8.00 per yard or	3680.00	
An o-er-charge of		$460.00
6″ Angle iron on nose of tower	$60.00	
Iron "I" Beams, timber and flooring of tower complete	90.00	
We estimate the cost of the latter materials and work at	75.40	
An over-charge of		$14.60

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200 yards sodding at 10 cents	$20.00	
1852 Grass seed at	10.00	
	$30.00	
Allow for sodding $7.00	$14.00	
And ½ for grass seed	5.00	
	19.00	
An over-charge of		$11.00

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Filter plant:

7530 yards excavation and regrading at 25 cents	$188.25	
Should be at 20 cents instead of 25¢	150.60	
An over-charge of		$37.65
245 yards cement concrete at $1.60	$392.00	
Should be at $1.40	343.00	
An over-charge of		$49.00
10,000 common brick in cement at $18	$180.00	
Should be at $14.00	140.00	
An over-charge of		$40.00

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Stand pipe raised 20 feet; the following figures from the deposition of Mr. Kimball:

2000 face brick at $12.50	$250.00	
100000 common brick at $6.50	650.00	
Laying 120,000 brick (face brick) at $7	140.00	
Should be 100,000 common brick at $5.00	500.00	
An over-charge of		$150.00

300 barrels of cement at $2.05	$615.00
200 yards broken stone at $1.05	110.00
100 yards of sand at 75 cents	75.00
Labor on 200 yards concrete 2.00 per yard	$400.00
Should be $1.50 per M	100.00
An over-charge on last item of	$100.00

1853 (NOTE.—In some of the estimates of Mr. Wheeler for pipe laying, we find a charge of $1.75 per yard has been made for rock excavations. We think this price excessive, and we have changed it to $1.00 per cubic yard, which is a full price for all the work we saw.

For the replacing of macadam we found 6 cents per lineal foot charge and we find that 5 cents per foot is a good price, and we have changed the items accordingly.

As to the quantity of materials, we examined the Old Boiler Building, the new Boiler Building and the Engine House at the River Station. As to slating, lumber, brick doors, windows, &c. we find the quantities given by Mr. Wheeler approximately correct, as we can do it ourselves.

On Reservoir Hill, we measured the lumber, floors in cement, and wood, slating, doors, and windows, and found the quantities approximately correct.

Reservoirs.—We have measured the two reservoirs at the Filter Station. We find each 182 feet by 106 feet and 17 feet and 8 inches deep; measurements taken on top of the bank. The slope of the bank for outside measures 4 feet on a level to 3 feet in depth at an average. The partition bank between the reservoirs has a slope of an average from 3 feet to 3 feet; two-thirds of the height only should be measured for the excavation.

The wood fence around the reservoir is 1043 lineal feet which we estimate at 30 cents $312.90

We attach below a report of our calculations of the quantities and estimate of the cost of the Reservoir.

The bridge from the intake tower to the pump building is an iron frame bridge, with a lumber floor and wood joists, and the price of $300.00
seems to be reasonable, as also the price of $300.00
for rip-rapping and grading along the river bank.

1854 The following is a Recapitulation of the figures set out in the foregoing, being deductions as follows:

On excavation earth 37.36 yards at $10.00 equals	$373.60
Regrading 4253 yards at 5 cents	212.65
Replacing pavement 76,977 lin. ft. at .01	769.77
Rock excavation for buildings, 2083 ft. at 87½ cents	1822.62
Water Closet, 10 yards at $ .75	7.50

For pipe, 2230 yards at $ .75 and 87½c.....	1672.50	
Sodding 1750 yards at 3 cents.....	52.50	
Over-charge on Grass seed	12.50	
Fencing 1150 feet at 10 and 15c.....	132.50	
" 125 " overcharge in labor.....	5.00	
		$5061.14
Brick in cement 374,550 at $3.....	$1123.65	
" " 92,250 " 4.....	369.00	
" " 100,000 " 2.....	200.00	
" " 85,000 " 5.....	425.00	
		$2117.65
Vitrified brick:		
61,000 at $6.00.....	$366.00	
46,000 " 5.00.....	230.00	
16,700 " 4.50.....	75.15	
90,000 " 2.00.....	180.00	
36,000 " 6.00.....	216.00	
6,000 " 5.00.....	30.00	
10,500 " 4.00.....	42.00	
		$1139.15
Enameled brick:		
11,500 at $19.00.....	$218.50	
Brick in lime, 290,800 at $5.....	1454.00	
3000 at $3.00.....	9.00	
1855	$42.00	
	50.00	
Over-charge on Brick work	26.00	
	150.00	
	100.00	
460 yards at $1.00.....	460.00	
Cement, concrete floor, and plaster:		
697.5 yards at 25 cents	174.38	
223 yards at 25 cents.....	55.81	
105 yards at 25 cents.....	26.25	
280⅛ yards at 50 cents.....	140.16	
245 yards at 20 cents.....	49.00	
Cement Concrete, 103.6 yards at $1.....	103.60	
		$3049.70
2383 feet at $3¾ cents.....	87.38	
Cement grouting	31.60	
Window sills, 45 at $1.00	45.00	
Windows and frames, 10 at 50 cents	5.00	
" " 4 at $2.00.....	8.00	
" " 3 at $2.00.....	6.00	
13 Window sills at 50 cents.....	6.50	
		$189.48
Doors and frames, 8 at $2.00.....	$16.00	
1 door and frame at $2.50.....	2.50	
1 Door and frame at $2.....	2.00	
		$20.50

Wood floors	5.90	
Stairs	108.00	
Railing	10.50	
Lumber:		
40,300 feet at $2.00	80.60	
25,300 feet at $6.00	151.80	
14,700 feet at $8.00	117.60	
17,850 feet at $4	71.60	
1,800 feet at $10.00	18.00	
2,300 at $12	26.40	
1,101 feet	1.10	
Lumber for former over-charge	20.72	
		$613.02
Carpenter Work	$413.00	
1856 Wood and iron for intake tower	$14.60	
Painting, oiling, &c	85.00	
Hardware	58.00	
Brick paved floors	73.50	
Clean out door for chimney	2.00	
Tool House charge at $161.40. Gone, Replaced and charged again, an over-charge of	$161.40	
		$807.50
		$12,998.14

Reservoir.

We have measured the reservoir on Reservoir Hill at Filter Station, and find the basins at the top, inside lines each 182 feet long, and 106 feet wide, and 17 feet and 8 inches deep, and the top of the fills, 12 feet wide on the outside, and the middle or partition 10 feet wide. The slope of the embankments we find 4 to 3 on the outside and 3 to 3 on the inside of the basin. We compute the capacity of both basins at 3,841.000 gallons.

We find 10,447 cubic yards excavation necessary to build these reservoirs. We consider 20 cents per yard for this excavation a fair price, but to cover puddling, packing and tamping, we have allowed 25 cents per yard, making $2611.75 for this work. We find 4975 square yards of bottom and sides of brick paving and concrete, for which we consider $1.30 per yard a fair price, if 6 inches thick, making $6467.50. The fence is 1043 feet long, which we figure at 30 cents making $312.90, a total of $9392.15.

In our examinations, when not absolutely certain, from our experience of many years in contracting and building in Knoxville, of a flagrant over-charge, we made no deduction from many items,
letting them stand at the prices charged, without the addition
1857 of any per cent. for architect or engineer's plans, and supervision. The prices allowed, after deduction, and the prices from which we made no deduction, are full, and do not permit any addition for supervision &c. The current rate for architect and

engineering services in Knoxville is five (5%) per cent. on the cost for plans, specifications, working drawings of details, and detailed supervision during the progress of the work. For plans, drawings and specifications, without the supervision, the architects charge is never, to our knowledge, over two and one-half (2½%) per cent.

Respectfully submitted."

Q. Who, besides yourself, joined in that investigation in making those estimates?

A. Stephen Munding helped me.

Q. S. J. Munding is that?

A. Yes sir, Stephen Munding.

Q. Does the report that you have filed and made a part of your deposition, correctly show the results of your investigations and estimates?

A. Yes sir it does.

Q. Were the parts of the work upon which you undertook to pass, those that related to and are within the scope of the business of a general contractor and builder?

A. Yes sir.

Q. You did not undertake to go into other parts of the work?

A. I did not sir.

Q. Will you state in the aggregate the reductions made on the work as compared with Mr. William Wheeler's deposition exclusive of the Reservoir?

A. The total amount of over-charge in buildings I find to be $12,998.14.

Q. Did you estimate quantities of brick and material so as to ascertain whether the same were correct in the estimate of Mr. Wheeler?

A. I have in a good many instances.

1858 Q. Did you find them or not substantially correct?

A. As to quantities I found them very nearly correct.

Q. Are the prices that you have fixed in your report and made a part of your deposition fair prices for such work and material as you have estimated at the dates at which they enter into the construction of this plant?

A. Yes, sir, I put the prices at a figure which I could have done for, or had it done for, at that time.

Q. Do you include the profits and risks of the contractor?

A. Yes sir.

Q. And the work of supervision?

A. No sir, excepting contractor's supervision.

Q. Mr. Getaz, what is and has been during the past twenty odd years during which you have been engaged in the general contracting business in Knoxville the usual per cent. allowance to architects for their services in preparing plans, specifications and supervising buildings or constructing buildings?

A. The architect, if furnishing plans, specifications and superintending in buildings, is five per cent. of total amount of contract price.

Q. What per cent. fees are allowed when the plans and specifications are furnished, and supervision is required?
A. Generally two and one-half per cent. of the contract price.
Q. Are these the maximum fees allowed in Knoxville?
A. I never knew them to exceed that.
Q. Have you known them to be less?
A. Yes sir.
Q. As to those parts of the works falling within the *sk*ope of the general contractor's business, have you left — unchanged in Mr. Wheeler's report?
A. Yes sir a good many items I did not change.
Q. Did you consider them full at the price therein stated, including contractor's profits and risks and architect's services?
1859 A. I don't know that I can answer that question the way you have it.
Q. In other words, were the prices on such parts of the work as were not changed by you, considered full and adequate?
A. I found the prices he had reasonable.

The further taking of this deposi.on was adjourned until Thursday morning July 23rd, 1902 at 9 o'clock a. m.

THURSDAY MORNING, *July 23rd*, 1903.

The further taking of this deposition was resumed.

Cross-examination of D. GETAZ by J. W. CALDWELL:

Q. Mr. Getaz, when did you come to Knoxville; in what year?
A. I came to Knoxville in the year 1878.
Q. Did you go into business on your own account, or did you enter a partnership?
A. I went in with Mr. Stephenson.
Q. When did that business terminate and why?
A. The partnership of Stephenson & Getaz was dissolved in 1893.
Q. Why?
A. Well Mr. Stephenson went into the marble business.
Q. Did the firm become insolvent?
A. Not at that time, no sir.
Q. After the firm of Stephenson & Gatez was dissolved, did you go on by yourself, or form a new partnership?
A. I went by myself for three years, I think it was.
Q. Did you have any financial trouble during that time?
A. No sir.
Q. Then did you form another partnership?
A. I did, with John B. Smith.
Q. How long did that business continue and when was it
1860 concluded?
A. I think it went on for three or four years and we took some railroad work in the last year of the partnership.
Q. Well how did that business conclude?
A. Well we lost money in the railroad business, and failed.
Q. What character of railroad work did you take?

A. We took trestling for the Sea Board Air Line in South Carolina.
Q. Then the firm went through the Bankruptcy Court after that?
A. Yes sir.
Q. I understand you to say Mr. Getaz that the quantities set out by Mr. William Wheeler in his estimate are accurate?
A. Yes sir very nearly.
Q. Mr. Getaz isn't it a very common thing for bids upon a given piece of work by contractors to vary largely?
A. It will vary of course, but not always very much.
Q. Did you ever know a case where contractors bid exactly the same sum on a given piece of work?
A. I have no recollection of any.
Q. Quantities being established, the question of price becomes one largely of opinion, doesn't it?
A. Well I don't know whether we can take it that way or not.
Q. What did you bid on the Court House?
A. Our bid was I think $81,000.00.
Q. And there were bids of over $100,000.00 on it, wer-n't they?
A. No sir I don't think it was much higher than ours.
Q. Are you certain there wasn't a bid on it considerably above $100,000.00?
A. I don't remember; I don't think so.
Q. Was yours the lowest bid?
A. Mr. Caldwell, I don't remember.
Q. Did you bid on the raising of the Imperial Hotel?
A. No I don't think I did.
Q. Do you know who bid on it?
A. No I don't think I do.
Q. Wasn't there a variation of from $10,000.00 to $20,000.00 on the bids of the various contractors on that building?
A. I don't remember for certain. I think it varied $10,000.00 but I don't think it varied $20,000.00.
1861 Q. You built the County Court House here?
A. Yes sir.
Q. And none of the other contractors got the work?
A. No sir.
Q. Isn't it a fact that for a number of years here, say from 1899 back it was well known that there was one firm of contractors that always did much lower than any others?
A. Yes sir.
Q. And they did a great deal of work?
A. They did.
Q. And their bids were made with the expectation of doing the work and making a profit on it?
A. I cannot tell you.
Q. You say in the first item of your statement which you have filed in this case, earth excavation was at a certain price? Now to what year do you assign that price and what year are you talking about?
A. From the year 1880 up to you might say 1898 or 1899. I never did pay over 20 cents for earth excavation.

Q. Now what I want to know is whether all the time from the year 1880 to the year 1899 earth excavation was 20 cents?

A. I mean to say that I never did pay any more than that and sometimes a great deal less.

Q. And that was without regard to the difficulties of the excavation or anything of that kind?

A. For work similar I mean to say, as in that building.

Q. But you don't get my question yet. I want to know if you fixed the price of 20 cents a cubic yard for earth excavation as applying to any particular year, or all the years between 1880 and 1899?

A. All the years.

Q. And all the prices that you have set out in this statement are good for every year from 1880 to 1899?

A. Yes sir.

Q. Now did you make an estimate of what these prices would be in the year 1901?

A. Not in that (estimate).

1862 Q. Is there any difference between the price allowed as a commission to an architect and that allowed to an engineeer?

A. I do not know.

Q. I do not understand you to say that an architect can build a reservoir over on the hill here, do I; that is not an architect's work is it?

A. He could do it, but of course it would come under the engineer's business, but an architect can do such work.

Q. You think then an architect could design a system of piping and pumping machinery?

A. No sir I don'- think an architect would know much about it; it don't come in his business.

Q. You have stated that 20 cents a cubic yard is a good price for earth excavation at the engine house and pit of the Water Company?

A. I have.

Q. How deep is that pit?

A. Which pit?

Q. The pit at the engine house?

A. I don't remember. I only read from the plan, and I found later that the pit was the same depth as the plan.

Q. About how deep was it?

A. I cannot tell you without looking at the plan.

Q. Isn't it considerably more than 30 feet deep?

A. It is not far from it.

Q. The ordinary earth excavation for the foundation of a small house would have been worth 20 cents, I assume from your deposition?

A. I have paid only 15 cents for the excavation of small houses.

Q. How much then for a large house?

A. I never exceeded 20 cents.

Q. Now do you classify work of this kind, taking dirt out of a pit 30 or more feet deep the same as an ordinary foundation for a house?

A. It is similar to this work here, because that pit was on

1863 the bank of the river, and they only had to dig the dirt and throw it out.

Q. Don't you know you are incorrect in saying that the lower side of the pit isn't below the level of the ground on this side?

A. Why a good deal has been built since the new engine pit has been built there.

Q. Don't you know it to be a fact that the bottom of the pit on the side next to the river is 12 feet below the level of the ground on this side of the pit?

A. Well, I don't know.

Q. Well if it is your estimate is a mistake isn't it?

A. It would be for 12 feet only in height.

Q. Don't you know the fact that the United States government don't allow the river to be obstructed by dirt being thrown into it?

A. I think I do, but there is plenty of room on the side to move the dirt.

Q. Did you consider the fact at that time that the Government didn't allow the river to be obstructed?

A. Yes, sir.

Q. Is the dirt there?

A. It is on the side of the pit.

Q. Is it there now?

A. A good deal of dirt is there now, and I suppose it is the same.

Q. Do you know that it is the same?

A. No, sir, I do not.

Q. How do you get the dirt out of a pit 12 feet deep?

A. Well if it is 12 feet deep I would build a platform half way down and have one man throw the dirt from the bottom onto the platform, and another man to throw it from the platform on up.

Q. And you think it would cost no more than the ordinary foundation?

A. It would probably cost 5 cents more.

Q. Then why didn't you allow that 5 cents more?

A. I should think 20 cents was enough for the whole thing, for I sometimes got that work done for 15 cents.

Q. Now I will ask you if 20 cents isn't the ordinary
1864 scraper price?

A. I have got that done as low as 12 cents.

Q. I wish you would put down the names of the men you have got to do that work for 12 cents a yard?

A. I would have to go to my books.

Q. I wish you would give me some of the men you have gotten to do the work at 15 cents?

A. The 12 cents work was done at the Southern Car Works. I did some scraping there and had it done at 12 cents a yard.

Q. Suppose the water company found it necessary in excavating down there at that excavation to use a derrick in getting the stone and dirt out, would that have justified any larger charges?

A. I made a note, but I don't know whether it is on that paper or not, that if it had to be hoisted up it would be worth 50 cents more on the cubic yard.

Q. You say that statement is on your paper?

A. I had it made in pencil on the memorandum I made; I don't know whether it was copied or not.

Q. I don't find it here?

A. Well it ought to have been there.

Q. Now does that 50 cents more apply to earth or rock (excavation)?

A. To rock.

Q. Well how about the earth?

A. Five cents will cover it at 12 feet deep.

Q. Now you say then that if the excavated material had to be hoisted that you would allow 50 cents more on rock per cubic yard and 5 cents more on dirt per cubic yard?

A. Yes, sir.

Q. Now don't you think it did have to be hoisted?

A. When I looked around there I thought that one side was open next to the river.

Q. But you put it in your statement that if it did have to be hoisted you would add these extra prices?

A. Yes, sir, I made a pencil statement of it and it may have been mislaid.

1865 Q. Examine and see whether it is there or not? (hands witness his estimate)?

A. It don't seem to be there where it ought to be.

Q. Now, Mr. Getaz, suppose that the lower side of the pit, that is the side next to the river down on the level with the outside surface—most of the dirt came from the opposite side of the pit, didn't it?

A. Yes, sir.

Q. And it would have taken three or four handlings to have gotten it over to the river side?

A. In a case of that kind I would wheel it in a cart or wheelbarrow.

Q. Where would you take it to?

A. On the upper side of the pit.

Q. That is a steep slope into the river, isn't it?

A. It would have been easy to have put planks there.

Q. The fact is you have constructed in your mind an ideal cheaper construction for disposing of that dirt haven't you?

A. If it was me I would have done it.

Q. And you would have handled it only once with carts?

A. Yes, sir, or wheelbarrows.

Q. How would you have gotten your cart in there?

A. The pit is large enough for that.

Q. How would you have gotten it in there?

A. On the side next to the river is plenty of room to get to that.

Q. When were you there, Mr. Getaz, to examine that ground?

A. I was on the ground before the water works were built, but while I don't remember the shape of the ground I know it was sloping though, but not excessive and then I was there after the works were done.

Q. How long ago since you were there the last time?

A. I was there two weeks ago the last time.
Q. Did you examine the ground?
A. Yes, sir, I did.
Q. And you thought that the lower side was open and that
1866 the dirt could be thrown straight out without being hoisted at all?
A. Yes, sir, I did.
Q. Mr. Getaz, how many brick did you measure to the cubic foot?
A. Twenty-one.
Q. That is known as the contractors' measurement?
A. Yes, sir.
Q. The bricks in the wall of the engine house pit are laid in cement, are they not?
A. Yes, sir, I think they are.
Q. How much cement did you allow for laying 1000 brick in that wall?
A. From a barrel and a half to two barrels, if Louisville cement.
Q. What does that cement cost?
A. At that time I used to pay $1.15 and $1.25 a barrel in small quantities. I have bought it as low as 95 cents in car load lots.
Q. What was the average retail price of it?
A. Between $1.15 and $1.25.
Q. Isn't it a fact that one barrel of that cement will lay about 500 brick?
A. Well, one and a half and two barrels is enough.
Q. You don't understand my question; I said wouldn't a barrel of that cement lay 500 brick?
A. One barrel of cement will lay from 600 to 700 brick.
Q. How much sand do you allow for laying 1000 of those brick?
A. Some specifications call for two parts to one of cement and some three parts.
Q. I want to know the exact quantity of sand to 1000 brick?
A. Nearly one yard.
Q. How many bricks would a mason lay in a day in a wall of that kind, in that kind of construction?
A. 1400.
Q. How much would you pay him for it?
A. The best bricklayer at that time got $2.50 for 10 hours work.
Q. Are you not mistaken in saying that a bricklayer could do that at $2.50 a day?
A. At that time they could be had at $2.50.
Q. At what time?
A. At the time the pit was dug.
1867 Q. When was it built?
A. In 1890.
Q. Which are you talking about, the original pit? or the present one?
A. And today they want $6.00.
Q. I am not asking about that, I am asking you whether your price refers to the first pit or the present one?
A. Yes, sir, to the first pit.

Q. You say you could get masons at that time for $2.50 a day?
A. The very best masons, yes, sir.
Q. How much did you pay for your sand at that time?
A. I paid 65 and 75 cents.
Q. Well, which was the price?
A. An average of 70 cents a yard.
Q. Would you have anybody to help your mason while he was laying brick?
A. Yes, sir.
Q. Whom did you have?
A. One laborer or helper.
Q. To each mason?
A. Yes, sir.
Q. And what did you pay your helper?
A. One dollar a day.
Q. Would you allow for staging for the mason to work on?
A. Yes, sir.
Q. How much?
A. I don't remember now. I figured it in that paper when I made it.
Q. Well, what was it worth?
A. I cannot tell you now without figuring it over.
Q. Figure it over and let us get what it was worth?

Mr. PICKLE: I submit that he shouldn't be made to recalculate it.

The WITNESS: I will say that $1.25 will cover it on the thousand.
Q. Would you make any allowance for the mortar beds and tools?
A. Brickmasons furnish their own tools.
Q. And furnish the hod and mortar beds?
A. No, sir, that $1.25 will cover the hod and the mortar bed.
1868 Q. Now, what was the price of the brick?
A. At that time, I used to pay $6.00 a thousand delivered.
Q. In what quantities?
A. Well not less than a thousand brick at a time; I bought them at $5.50 by the car-load delivered.
Q. Now, Mr. Getaz, wouldn't it be a very extraordinary brick mason that could lay 1400 brick a day in a wall?
A. It would take a good brick layer.
Q. Do you think you could get a man at that time for $2.50 a day that could lay 1400 brick in a wall like that?
A. Yes, sir, in a wall like that.
Q. Well, you have figured on the best brick mason any how haven't you?
A. Yes, sir.
Q. And then you figured on the cheapest brick, didn't you?
A. Well, a good quality of common brick.
Q. What kind of brick are they in that wall?
A. That wall has been torn down since and rebuilt.
Q. And you don't know what they were?
A. No, sir.

Q. Well you have allowed $12.00 per thousand for those brick laid in that wall?

A. Yes, sir.

Q. And in doing so, you fixed the items or elements entering into the construction, at the figures you have given me in this cross-examination?

A. Yes, sir.

Q. Now, I understood you to say, Mr. Getaz, that the prices you have fixed here, apply to all the years between 1880 and 1899?

A. Yes, sir.

Q. Could you have gotten a good 1400 brick layer a day in 1899 for $2.50 a day?

A. In Knoxville, I have, yes, sir.

Q. In 1899?

A. I don't know; I am speaking of the time the pit was built.

Q. Could you have gotten that man in 1895?

A. Yes, sir.

1869 Q. A first class bricklayer?

A. Yes, sir, a first class bricklayer, I could.

Q. What is the average number of bricks a mason will lay in a day?

A. It is according to the size of the wall and the openings at the windows and doors.

Q. Making all necessary allowance, what is the average number of brick that a brick mason can lay in a day?

A. Eight hundred on a small wall and two thousand on a big wall.

Q. Two thousand on a big wall?

A. Yes, sir, and only eight hundred on a small wall. By a big wall I mean a thick wall.

Q. Take the total brick work in any building and average the work done by the masons on that building, do you think that in any event it will exceed one thousand bricks by each mason on the average for a day's work?

A. On a building like the Deaderick Building across the street, it would be about twelve hundred brick.

Q. It would be about twelve hundred brick?

A. On a building like the Deaderick Building, yes, sir.

Q. Now, Mr. Getaz, if the average would be twelve hundred bricks per mason on the Deaderick Building per day, why would it be 1400 bricks down in the engine pit of the water company?

A. Because there is no opening there and the brick mason can lay his bricks faster.

Q. How did they get the brick to the mason in the Deaderick Building?

A. Hoisted them up in an engine until they got to the second story.

Q. How did they get them to the mason in the engine pit?

A. They had to be lowered instead of carried up.

Q. Lowered, where from?

A. From the top, or they can be taken from the side on level brick work like that.

Q. Which is easier to build, a straight wall or a curved wall?

1870 A. A straight wall.

Q. What kind of a wall is this in the pit?

A. It is curved.

Q. And you think that your mason could lay 1400 brick a day on a curved wall in the engine pit?

A. Yes sir.

Q. And could lay 1200 brick in a straight wall like the Deaderick Building?

A. Yes sir.

Q. I presume you will admit that in fixing 1400 brick, you have given us the highest average?

A. Yes sir a good working day.

Q. Of how many hours?

A. Ten hours.

Q. What was the working day in 1901 for brick masons?

A. I don't know what the scale was in 1901.

Q. What was the price in 1901 paid to a brick mason?

A. I think it was $4.00 for the best work.

COMMISSIONER: And for how many hours?

A. For 9 hours I think at that time; I am not sure of it. They didn't work altogether the Union men at that time. The Union was in bad shape then; some worked 9 hours and some 10 hours.

Q. If you had made a reasonable effort couldn't you have allowed us $3.50 or $4.00 for a mason in the period covered by this paper here?

A. I know that the price was $2.50 for the best brick layers here.

Q. That don't answer my question. Please read him the question?

(Question repeated.)

A. I don't see why I should.

Q. Now suppose you assume it to be a fact that the water company did pay $3.50 to a mason for a day's labor during that period, would that have been an unreasonable price?

A. It would for a contractor.

Q. I am not speaking about a contractor——

A. Well they would have paid too much.

Q. How much would a helper to a mason have cost them in 1901?

1871 A. One dollar per day.

Q. In estimating the cost of the cement floor of the pump pit, did you simply measure the floor in the pit proper, or did you include the floor surrounding the pit at the upper level?

A. The floor of the pit only.

Q. You did not include the floor on the upper level?

A. I don't think I did.

Q. That is included in Mr. Wheeler's estimate that you are correcting?

A. I don't think it is in the same place.
Q. Now you found only 650 square yards there?
A. Yes sir.
Q. And Mr. Wheeler has 735 square yards?
A. Yes sir.
Q. Assuming that Mr. Wheeler meant to include the floor of the upper level around the pit, his statement would be correct wouldn't it?
A. I suppose it would. That floor has been torn down since and rebuilt.
Q. You say in regard to the spiral stairway to which you refer as costing properly $225.00 instead of $250.00. What stairs do you mean?
A. I mean the stairs that is now in the old pit. It is a new stairway with iron frame and brass railing.
Q. How do you know that that is the same stairway that Mr. Wheeler estimates at $250.00?
A. I don't think it is the same.
Q. Well I understand the purpose at that point is to correct his statement, is it?
A. It is, yes sir.
Q. If it is not the same stairway, how can you correct his statement?
A. Well it is a misunderstanding.
Q. A "misunderstanding" on whose part?
A. On my part.
Q. Going to the question of brick-laying in lime, of which you find 75,000 above ground. What did you allow for those brick per thousand?
A. $8.00 laid.
1872 Q. How much for the brick by themselves?
A. $6.00.
Q. How much lime does it require to lay a thousand of them?
A. It would take five barrels of lime about.
Q. And what would that cost?
A. I used to pay 7 cents a bushel for it at that time.
Q. How much in March 1901?
A. It may have been a little more; probably 8 or 9 cents. That is my recollection for that year.
Q. How much sand does it require to lay 1000 of them?
A. Nearly one yard; three-fourths of a yard, the same as we figured.
Q. How many of those brick will a mason lay in a day?
A. I told you a while ago from 800 to 2,000 according to the thickness of the wall and the openings.
Q. Then I understand he will lay the same number as in cement?
A. Yes sir, just about.
Q. And you have assigned 1400 brick a day for cement work. You mean ten hours a day now?
A. Ten hours a day in straight wall. If you are speaking of the building down here, I would put it twelve hundred brick a day.

Q. I am speaking of this particular place here?
A. Fourteen hundred brick a day.
Q. That is to say he would lay the same number a day in cement as he would lay in lime?
A. He don't but in this case he can lay those bricks in lime mortar at 1400 a day.
Q. Why is it he cannot lay an equal number in ordinary cases?
A. He cannot lay as many in cement mortar, because the mortar settles quick on him.
Q. Then what is it that relaxes that natural law in this particular case?
A. In this case the brick laid above the ground, and having a good many windows and doors, a brick-mason could not lay
1873 over 1000 to 1200 brick in cement or 1400 in lime mortar.
Q. Now you say in cement he could only lay from 1000 to 1200?
A. When it is above ground.
Q. I thought you put it 1400 awhile ago?
A. That was in a pit where there were no windows or doors and where the brick wall was 18 inches thick.
Q. Would you allow the same for helpers above ground as in the pit?
A. Yes sir.
Q. And the same for staging?
A. No sir it don't require as much staging above ground as in the pit.
Q. And the same for tools?
A. The staging will cost 20 cents for each 1000 brick laid.
Q. Now let us see if we have this right: Brick $6.00 a thousand?
A. Yes sir.
Q. Lime 5 bushels at 8 cents per bushel, 40 cents?
A. Yes sir.
Q. Sand one yard at 7 cents. Are those right?
A. Please read it over.
Q. Brick $6.00 a thousand, is that right?
A. Yes sir.
Q. Lime, 5 bushels at 8 cents, 40 cents; is that right?
A. I told you 7 cents I thought.
Q. I understood you to say later it was 8 or 9 cents. Sand one yard 70 cents?
A. Yes sir.
Q. Mason laying 1400 bricks at $2.50, $1.78; is that right?
A. I think so.
Q. Helper, 1400 brick at $1.00, 72 cents; that is for the helper at $1.00 a day 72 cents per thousand?
A. Yes sir.
Q. Staging for each thousand 20 cents. Now how about the hod, tools, &c.?
A. That goes in the staging.
Q. Now those different items are correct, are they?
A. I think so, yes sir.

Q. That is for ten hours' work?
A. Yes sir.
Q. Now in March 1901, it was nine hours a day wasn't it?
A. It was when laid by the Union brickmen.
1874 Q. If a brickmason would lay 1400 brick in a day of ten hours, he would lay 140 brick less in a day of nine hours?
A. Generally about the same quantity as they work harder.
Q. So you have got a $2.50 man making him work and doing as much work in a day of nine hours as in a day of ten hours?
A. Yes sir, he works harder.
Q. I suppose if it was eight hours a day he would still lay the same number of bricks in eight hours as in ten hours?
A. No sir I don't think he could quite.
Q. What was this $6.00 quality of brick worth in March 1901?
A. I think brick were a little higher in 1901, but I don't know exactly what it was at that time.
Q. Didn't they get higher pretty steadily from 1880 on up?
A. I think it began in 1900 and 1901.
Q. I see that you have allowed us $3.00 each for window sills which we have estimated at $4.00. How do you know that $3.00 is a fair price?
A. I base that price on the sill I bought before or about that time, the same size as those.
Q. About what time?
A. All the way through in those years. From 1890 on up and before. I bought window sills as low as $1.50.
Q. You don't know what these sills did actually cost, do you?
A. They couldn't have cost $4.00; I know that much.
Q. Do you know that the water company didn't pay $4.00 for them?
A. I don't know about that.
Q. What size were they?
A. Most of them were 6 inches up, 8 to 8½ in the wall and running from 4 to 5 and 6 feet long.
Q. For ten large 12 x 18 lights and 2 circular windows, for which we charge $110.00, you allow us $95.00?
A. Yes sir.
Q. Are those windows there now?
A. Not all of them.
Q. Are any of them there?
A. Yes sir.
Q. How many?
A. I don't remember but I know there is no less than
1875 three there if not more.
Q. How do you know they only cost $9.50?
A. I had a good many of them made, and I know the price of glass and I figured it that way.
Q. Isn't there a difference in the quality of glass that affects the window?
A. Yes sir.
Q. What was the quality of glass in those?

A. It was a second quality.
Q. What do you mean by a second quality?
A. It is not as good as the first quality.
Q. Well, I believe that to be correct. I infer also that it is better than the third quality?
A. Yes sir.
Q. Now what are the distinguishing characteristics of the second quality?
A. It is not as clear as the first quality.
Q. What is the quality you generally put in windows of this character?
A. Second and third quality.
Q. And you say they put the second quality in?
A. I know it was not the first.
Q. Did you pay the prices you fix here for second or third quality?
A. For second.
Q. What did you pay for the third quality?
A. It is a fraction less than the second.
Q. You say that we charge an excessive price for 2750 feet of boarding for which we charge $60.50, and you allow us $55.00. That is all gone isn't it?
A. Yes sir, it had to be taken down.
Q. How do you know we charged too much for it then?
A. Why the price is too high—the lumber could be bought for less than that.
Q. Do you know what kind of lumber it was?
A. It was boarding.
Q. You fix the price on it and say we charge too much for it without ever seeing it?
A. Yes sir I do.
1876 Q. Don't you think there is some risk in that?
A. No sir I don't see any at all.
Q. Now you refer to railing around the pit, 129 feet which we charge $75.00 for and which you say we charge $10.50 too much for it. That railing is all gone isn't it?
A. Well part of that railing is there yet.
Q. How much of it?
A. Well nearly all of it.
Q. That is you are pricing the railing that is there now?
A. Yes sir.
Q. Please turn to page "23" of William Wheeler's deposition and see if you do not find this heading covering this item: Plant and Improvements at River Station. A Engine House and Pit: Brick 45 feet 4 inches by 35 feet (supposed to have been constructed in 1883 and since replaced in part and enlarged). Now your estimate of $64.50 is on the railing that is there now isn't it?
A. Yes sir.
Q. You don't know anything about the railing that was taken away from there do you?
A. I never have seen it that I know of.

Q. Then if Mr. Wheeler's deposition refers to railing that was taken away, your deposition on that point is inapplicable?

A. That is right.

Q. Now your item of Hardware, Nails, &c. for building, $100.00 is our price and you say that $50.00 will cover that?

A. Yes sir.

Q. Now do you refer to the present structure there or the one that was taken down?

A. The one that was taken down. We had the size of it and I found that $50.00 would cover all of that.

Q. Where did you get the plan?

A. From the water company.

Q. It is a mere outline plan

A. Yes sir, but sufficient to understand it; we had a drawing of it.

1877 Q. Does it show the framing &c., so as to enable you to get at the amount of truss work?

A. No sir it did not.

Q. And on that incomplete plan you cut Mr. Wheeler's price down one-half without ever having seen the building or complete plan of it?

A. I had enough of the plan of it to figure the cost of the building.

Q. Isn't there a lot of iron work in trusses which would materially affect this estimate?

A. In some, yes sir.

Q. You don't make any allowance for it?

A. I understood there it was a plain building and a small building could be built without the iron.

Q. At all events you never saw the building or never saw a complete plan of it?

A. No sir.

Q. Don't you think there is some possibility of your being in error in your statement?

A. Yes sir a small error.

Q. How do you know it is a "small error"?

A. I had enough of the plan to see what it was.

Q. Now you say in regard to the carpenter work, where we charge $224.00 you allow $132.00 and charge us with an excess of $92.00. That carpenter work is all gone isn't it?

A. Yes sir.

Q. Then how do you know that we charged $92.00 too much for it?

A. Because there were so many feet of lumber, and from my experience in building I know it would not exceed $10.00 to $12.00 per thousand feet for the carpenter work.

Q. How much lumber was there?

A. I don't remember now, but Mr. Munding and I took the measurement of the number of feet there.

Q. Give the pages of your deposition on which these amounts can be found?

1878 A. ——.

Q. Suppose that the lumber cost delivered on the ground $9.00, what would you estimate the carpenter work to be?

A. I estimate the carpenter work on the number of feet and not the price of the lumber.

Q. Would it be the same then for rough staging as for finished lumber?

A. No sir it would not.

Q. Then how do you estimate it?

A. I average it.

Q. Isn't the rule to estimate carpenter work according to the price of lumber delivered on the ground?

A. I don't do it that way.

Q. Don't others do it that way?

A. I don't know.

Q. Isn't it a fair rule?

A. No sir.

Q. Why?

A. Because if you pay too much for your lumber it will not increase the carpenter work on it.

Q. Well the rule you state will not work invariably, will it?

A. From my past experience I know that on framing lumber certain sizes cost so much per thousand feet, flooring so much, siding so much, finished lumber so much and trussing so much.

Q. Well how did you get at the amount you allowed for this carpenter work; give me the details of it now?

A. I placed all that in this building here at $12.00 a thousand feet for the carpenter work.

Q. You allowed the carpenter work $12.00 on each thousand feet of the lumber?

A. Yes sir.

Q. Did you place any price on the lumber?

A. Yes sir we did.

Q. What price in dollars and cents?

A. On the boarding $12.00 a thousand and on the framing lumber $14.00 a thousand.

Q. Now why did you fix on $12.00 a thousand?

1879 A. On a building like the Deaderick Building it cost about $8.00 a thousand carpenter work; on a rough shed it cost about $5.00, putting up joists it cost about $5.00, but when you lay flooring it cost $12.00, and trussing as high as $15.00 to $20.00. This I know from past experience.

Q. And you allowed us for this carpenter work at the rate of $12.00 per thousand feet of lumber?

A. Yes sir, and $3.00 to set each window and door.

Q. Now what else did you allow?

A. That is all for the carpenter work.

Q. Did you make any allowance for staging for the masons to work on?

A. We had that in our brick work.

Q. How about the time for a carpenter in building the staging, have you allowed for that?

A. When I do brick work I have the truss already made and the laborers always lay the lumber on that truss—the same laborer that serves the brickmason. We included that in our brick work.

Q. And you do not allow it here?

A. No sir.

Q. In regard to the Boiler House, how do you get your price per thousand feet for the lumber in that in view of the fact that the Boiler House was all gone?

A. At that time I was in business in Knoxville and I bought a great deal of lumber and I know the price of it.

Q. Do you know the quality of lumber that was used in that house?

A. I didn't see any of it, but I suppose it was lumber suitable for such a building.

Q. The whole estimate that you make there is based purely upon supposition then?

A. Why no.

Q. Then what is it based on?

A. On fact.

Q. What fact?

—. That I could buy lumber at $12.00 at that time such
1880 lumber as was suitable for such building, and I allowed $14.00.

Q. Now suppose the water company elected to pay $16.00 instead of $14.00 for the lumber in that house, would that be an unreasonable expenditure?

A. Yes sir.

Q. Why?

A. Because they didn't need good lumber there.

Q. Wouldn't you allow them that much choice?

A. I would not if I were to buy it.

Q. Isn't that a matter of opinion on the part of the builder and supervision engineer or architect?

A. Yes sir I suppose it is; if they want to put costly lumber where they do not need it, they have the privilege to do so.

Q. When was that house built?

A. I don't remember; I don't know just what year.

Q. Did you ever know?

A. When I made the estimation and had that paper, I saw what date it was.

Q. Look at that paper and tell us the date now?

A. It was built before 1890, but just what year, I do not know; between 1880 and 1890, but what year I don't know.

Q. Did you ever know?

A. I don't know exactly, but I know when the water works were built or about when they were built.

Q. Well when was that?

A. Before 1890 as near as I can recollect.

Q. Well that is a period of ten years; now what part of this ten years was this particular house built?

A. The middle or latter part of it I think.

Q. But you don't know what year?

A. No sir.

Q. Well if you don't know what year it was built *it*, how do you know what lumber cost at the time it was built?

A. I was in business in 1880 and I am satisfied that the building wasn't put up at that time.

Q. Well I understand that, but I want to know how you
1881 know what that lumber cost?

A. Because I was in the lumber business in Knoxville and lumber for a house like that didn't cost over $14.00 a thousand.

Q. Well when was that?

A. Between 1880 and 1890.

Q. Then lumber never did change in value during those ten years?

A. Very little; it did not exceed $14.00 at any time.

Q. For what quality?

A. That which was suitable for that building.

Q. What was suitable for that building?

A. Ordinary boarding and ordinary framing lumber, what we would use for joists and buildings now-days, except outside finished lumber.

Q. Would any cheaper lumber than the kind you have mentioned there of $14.00 lumber have been suitable for this house?

A. Yes sir.

Q. Why don't you estimate it at that price then instead of at $14.00?

A. Well I wanted to be safe.

Q. Well if lumber costing less than $14.00 would have been suitable, why didn't you estimate it at that?

A. I could have done it.

Q. Why didn't you do it?

A. Because I didn't want to do it. I wanted to be fair with the water works. $8.00 or $9.00 lumber by the car load lots would have done.

Q. Then if $9.00 lumber would have been fit, you have allowed us $5.00 too much on the thousand for it?

A. No sir, because you would have to buy it by the car load lot, and you would have a good deal of it to lose.

Q. Suppose you bought a car load lot at $9.00——

A. You would have a great deal of it lost and then it would have to be hauled up there. I put it at $14.00 because I thought that would be a fair price.

Q. Well if $9.00 lumber was good enough, why didn't you
1882 charge that price instead of $14.00?

A. I told you my reasons.

Q. What would that lumber been worth in March 1901?

A. You could get it at $14.00 also in 1901—that class of lumber.

Q. You have figured brick paved floor, engine house 7500 brick

where we have charged $97.50 you put it at $60.00. Did you figure part of that floor as laid in dry sand or cement?

A. In sand.

Q. That floor is gone isn't it?

A. I didn't see anything of it.

Q. You don't know whether it was laid in cement or not do you?

A. I do not know sir.

Q. If it was laid in cement the cost would have been different from what you estimate it here, wouldn't it?

A. Yes sir.

Q. Now you have cut us down on Tool Storage House; you have cut out the Tool and Storage House of $161.40?

A. Yes sir.

Q. That is on account of the fact that that is gone?

A. It had been moved from there and placed somewhere else. Down in that statement of Mr. Wheeler's in that house he charged full quantity for material and labor, so I considered it had been charged twice.

Q. Where else has it been charged?

A. You will find it on page "22" of my statement.

Q. Now the Tool and Storage House referred to in the earlier part of your deposition as costing $161.40 and referred to on page "26" of William Wheeler's deposition, was a frame house wasn't it?

A. In Mr. Wheeler's estimate he has a statement showing the moving of the Tool and Storage House, and I took it to be the same one he had in his estimate on page "91" of his deposition.

Q. Well upon examination you find that they are different, don't you?

A. Yes sir; he uses the same material.

1883 Q. Why, one was a frame house and the other a brick house wasn't it?

A. It looks very much like it.

Q. The second Tool and Storage House referred to in your deposition had 13,000 brick in it, didn't it?

A. Yes sir.

Q. And the first one was a frame house?

A. What page did I give you? I would like to take all this back.

Q. You gave me page "22"?

A. I should have given you page "4."

Q. That is the page I am asking you about?

A. Well it is the same page, below there is where it is.

Q. The item that I have been asking you about was the Tool and Storage House 22 x 16 feet, costing $161.40 which you say is an entire overcharge of that amount. Now isn't the one you refer me to now a frame storage house 38 x 14 feet instead of 22 x 16 feet, and isn't it an entirely different house from the one that cost $161.40?

A. Well I cannot remember just how it is. I will have to give that up.

Q. The result then is that your elimination of that $161.40 is an error isn't it?

A. Unless I can find out and explain it.

Q. We have estimated brick in the chimney stack pump station laid in cement at $15.00 and you say that $12.00 per thousand is a fair price; that is the same price as for bricks down in the pit laid in cement?

A. Yes sir.

Q. The stack is gone, isn't it?

A. I, think it is.

Q. What was the shape of it?

A. I don't know.

Q. You don't know whether it was round or square or octagonal or had ten sides to it, do you?

A. I cannot tell.

Q. Well wouldn't all those matters that I have referred to make a difference in the price?

A. I don't remember that chimney.

1884 Q. It is a chimney 80 feet high.

A. This is for the foundation of the chimney; I think that foundation is there.

Q. Are you sure about that?

A. No sir I am not; I think it is there. It is not high. It is just a foundation.

Q. Here is a chimney 42 inches by 80 feet high, 9750 brick?

A. Being laid near the ground, I think that $12.00 a thousand is a good price for it.

Q. You say that $12.00 is a fair price for it?

A. Yes sir.

Q. How high was it from the ground?

A. I do not know.

Q. Well you have estimated certain other facts about it; what was your conclusion as to how high it was from the ground?

A. Well from the fact that it had to carry an iron smokestack it wouldn't be very high.

Q. Four or five feet?

A. Oh I suppose ten or twelve feet.

Q. Suppose it wasn't over six feet in height?

A. Well I wouldn't want to change the price. I think that $12.00 is a fair price for that kind of work.

Q. Well if $12.00 is a good price for that kind of surface work out on the ground, don't you think that $12.00 charge down in the pit is a little low?

A. I think I got it about right.

Q. You mean to put these two classes of work on the same level as to price, and you would have the Court to understand that a contractor would take these two classes of work at the same price?

A. Yes sir.

Q. Why did you reduce the iron clean-out door from $10.00 to $8.00?

A. I have bought the same kind of door from $4.00 to $6.00 to $8.00, and never have paid $10.00 for it.

Q. What did the door you paid $4.00 for weigh?

A. I don't know. It was about 12 by 14 inches.

Q. Well the weight of the thing is what controls the price
1885 mostly, don't it?

A. Yes sir.

Q. Well do you know what this one weighs?

A. No sir.

Q. Then your estimate here is one of pure guess, isn't it?

A. Yes sir it is in this case.

Q. Now Mr. Getaz in estimating the cost of that stack you reduced our claim as to the brick work and as to the clean-out door. Why did you select those items and omit the other iron work in the stack?

A. You mean the stack itself?

Q. Yes sir.

A. I wasn't posted on iron stacks, but I had bought a good many iron doors for clean-outs.

Q. You were not posted on brick stacks either, were you?

A. Yes sir I have built brick stacks.

Q. I understand you to think our prices on the coal-chute, page "27" of William Wheeler's deposition, are all right?

A. Yes sir I made no change in that.

Q. Why didn't you cut us down on the lumber there?

A. The lumber is $14.00 a thousand in his estimate.

Q. The fence about the store-house is all gone isn't it?

A. What fence do you refer to?

Q. Found on page "28" of Mr. William Wheeler's deposition?

A. I took that fence to be the fence on top of the hill. There is a fence there but I don't know whether it referred to it or not, but I took it to be so.

Q. And if that fence which Mr. William Wheeler refers to in his deposition is gone, your statement here is erroneous?

A. Yes sir, but if it is that fence, I think my statement is correct.

Q. How long is the fence?

A. I didn't measure it exactly, but I took it to be about 125 feet in length.

Q. So you treated Mr. Wheeler's estimate as applying to the fence now existing and reduced his labor charge on it $5.00?

A. Yes sir.

1886 Q. Now treating that fence which we charge labor on $20.00 and you allow us only $15.00 as being the one now standing on the ground, if you will look to page "19" of your statement originally prepared the item reading "fence around Craig Street lot 350 feet, 7 foot picket fence, &c." isn't that the same fence, and hav-n't you therefore reduced us twice on that fence?

A. I may have mixed the streets up. There are three fences in all and I may have mixed the streets.

Q. But as your deposition now appears, you have reduced us twice on the same fence?

A. Yes sir. There are three fences and I made an estimate on the three fences, and the three fences are there, but which is which, I am not sure as to the name of it.

Q. Mr. Getaz, how much *had* have you taken out of pipe trenches from 2½ to 3 feet wide and from 3 to 5 feet deep, lying close to houses in the public streets?

A. Mr. Caldwell, I have had very little experience in it.

Q. Well I ask you now to state the quantity of rock you have taken out under those conditions?

A. None.

Q. Then why do you undertake to estimate the cost of that particular kind of work?

A. At first I didn't want to do it, and I knowed the price was excessive, but if you want to strike me out of that, I am perfectly willing, because I am not acquainted with that class of work.

Q. You state that you are not acquainted with the cost of that?

A. I have excavated rock from trenches for brick work as low as 5 feet deep, which never cost me over $1.00 per cubic yard, and in trenches for pipe work I classified as similar.

Q. I understand you however to say that you are not acquainted with these prices?.

A. With that kind of work I am not; that is for piping.

1887 Q. How many yards of macadam in strips 3 feet wide have you ever laid on the public streets?

A. I don't know how many feet. I have often placed macadam on streets at the side of buildings I have put up and it never did cost me over 5 cents a foot by 3 feet wide.

Q. Mr. Getaz, why do you allow only $19.00 for laying vitrified brick in cement?

A. Because that is enough.

Q. That you fix as a fair and reasonable price?

A. Yes sir.

Q. How much portland Cement does it take to lay 1000 vitrified brick?

A. From one barrel to a barrel and a half.

Q. What is it worth?

A. Three dollars.

Q. Three dollars a barrel?

A. Three dollars a barrel; well I have paid as high as $3.50.

Q. And what do you allow for the bricks themselves?

A. I think I allowed $12.00 or $12.50 I don't remember which.

Q. That is $12.00 for the brick, $3.00 for the cement and how much for the sand?

A. Well it would take ¾ of a yard and it costs about 70 cents a yard—about 55 cents.

Q. Does it take about the same amount of sand to lay brick in Portland cement as in lime?

A. About the same.

Q. What do you allow the mason for laying vitrified brick in Portland cement?

A. At that time I think $2.50 was the price of a good brickmason.

Q. At that time?

A. When the buildings were built on the Hill.

Q. When was that?

A. That was after 1890 and before 1900.

Q. How many vitrified brick in Portland cement will a mason lay in a day?

A. The way those are laid he will lay about 1000.

Q. Did you ever lay any vitrified brick in Portland cement?

A. Yes sir.

1888 Q. Where?

A. I don't know that I can name it. I had a job in Greensboro North Carolina, where we had the same kind of work up there as the filter station on top of the Hill.

Q. How many did you lay?

A. We had from 15,000 to 20,000.

Q. Are those the only vitrified brick you ever laid in Portland cement?

A. Yes sir.

Q. What was that building for?

A. It was the Station building for the Southern Railway Company.

Q. Suppose that these vitrified brick were laid for the purpose of securing a perfectly water tight work, would your estimate still apply?

A. I don't know how much pains it took. I think a man can lay 1000 a day, and my estimation is high enough.

Q. I am not asking you that. Repeat the question to him?

(Question repeated.)

A. Yes sir.

Q. Did you ever lay brick of this kind in order to construct water-tight work?

A. I have done such work for the Southern Railway Company, for D. W. Lum, the engineer for the Southern Railway. It had to be laid in shove joints and each joint had to be full of mortar.

Q. Now you say that your experience as an expert contractor, that a mason can build shove joints and handle a thousand a day in doing it?

A. Yes sir.

Q. Would you allow the helper of the mason laying these vitrified brick in Portland cement the same as the other helper?

A. Yes sir.

Q. Now Mr. Getaz, lets put this statement in the record; one to one and one-half barrels of Portland cement at $3.00?

A. Yes sir.

Q. Allowing a barrel and a half of cement, that would be $4.50?

A. Yes sir.

Q. And vitrified brick at $12.00?

A. Yes sir.

1889 Q. Three-fourths of a yard of sand, 55 cents?

A. Yes sir.

Q. Mason $2.50?

A. Yes sir.

Q. Helper $1.00?

A. Yes sir.

Q. And how much does that amount to?

A. Twenty dollars and fifty-five cents; but I figured 21 brick to

the cubic foot; the actual quantity of brick is 17 or 18. I figured one-half for openings of windows and doors. The saving of the work will make up for deficiency of this cost.

Q. Now Mr. Getaz, if you have figured 21 brick to the foot and we figure 17 brick to the foot, then we are entitled, are we not to 21/17 of your price?

A. You would if you had more brick in the building than Mr. Wheeler in this schedule, but I counted this work at 21 brick to the cubic foot, and so I made about the same quantity of work that Mr. Wheeler did in his schedule.

Q. But my question is if we did count 17 brick where you counted 21 brick, we are then entitled to 21/17 of your price?

A. Yes sir, but you would have too many brick in your building, and then we contractors and builders in Knoxville we figure one-half openings.

Q. Now you have allowed 61,000 vitrified brick in Portland cement around the settling basin at $19.00 a thousand?

A. Yes sir.

Q. Elsewhere we have charged 85,000 common brick in cement at $18.00 and you say that that price is excessive and that $13.00 is enough for it?

A. Yes sir.

Q. Why?

A. Because the brick cost only $6.00 and as we understand they were laid in Louisville cement, or it may be in Portland cement, as the schedule don't state, and I couldn't say what cement it was.

Q. Now please examine Mr. William Wheeler's deposition on page "46" about 3/5 of the way down the page and see if it does
1890 not state Portland cement mortar, 85,000 at $18.00?

A. He says Portland cement in his schedule.

Q. Well if they are laid in Portland cement, does your estimate at $13.00 a thousand still hold?

A. If in Portland cement, yes sir, for common brick cost $6.00 against $12.00 for vitrified brick.

Q. Now Mr. Getaz, don't Portland cement cost more than Louisville cement?

A. It does.

Q. And didn't you make this schedule out understanding it was Louisville cement?

A. I think I did.

Q. Now if it was laid in Portland cement, oughtn't there to be a difference?

A. It would perhaps be more.

Q. Well how much more would you make it?

A. Well I would make it $2.00 more in that special case.

Q. Now Mr. Getaz, the 61,000 vitrified brick were allowed by you at $19.00 a thousand?

A. Yes sir.

Q. —in one of the instances referred to. Now on page "9" of your statement as originally paged, you find 90,000 vitrified brick and allow us $18.00 a thousand instead of $19.00 a thousand as in the case of the 61,000 brick. Why is that?

A. When I was looking at the buildings I found some brick work done much better than some other, and I placed my price then.

Q. Is that fact stated in this statement here?

A. No sir.

Q. Why is it not?

A. I didn't know that it was necessary.

Q. What is the defect in the laying of these 90,000 brick which induced you to put the price $1.00 a thousand lower on them than on the others?

A. They are not laid as well perhaps in line, then the 61,000 brick we had before was for the basin and it was to be a perfect job of laying to prevent the water from running out. These 90,000
1891 brick were out of the ground.

Q. Don't you know that these 90,000 brick were just as effectively laid for the purpose for which they were put there as the others?

A. I do not know whether they were or not.

Q. Didn't they cost as much as the others?

A. Yes sir.

Q. Then if they cost as much and you don't know any reason why they should not be as effectively laid as the others, why shouldn't you allow as much for them to the water company?

A. I think $18.00 a thousand to lay those 90,000 brick is enough.

Q. Please repeat the question to him?

(Question repeated.)

A. I will state again that when examining the work I placed my price on similar work because such work was done better than some other, and in this case the 90,000 brick may not have been laid properly.

Q. Was the whole 90,000 laid improperly?

A. I had to judge from what I could see.

Q. What did you see?

A. I couldn't state the quantity of the work I saw now.

Q. Well about how much?

A. Why I may have examined 5,000 brick.

Q. They are laid on a curve are they not, those you examined?

A. I found some that didn't seem to have been of those 90,000.

Q. Now I will ask you if those of the 90,000 you saw up there had not been laid on a curve?

A. No, these were straight, the most of them.

Q. Are you talking about the Pump Station or the Filter Plant?

A. This is the Filter Plant.

Q. Now again on page "9" of your statement as originally prepared you have 46,000 vitrified brick in cement, which you allow us at $20.00. Why did you put $20.00 on them instead of
1892 $18.00 or $19.00 as you have heretofore?

A. It is a better class of work.

Q. In what respect is it better?

A. It is better workmanship.

Q. Now Mr. Getaz, what defect was there in the work of laying the 61,000 brick for which you allow $19.00 a thousand?

A. I tried to explain that before by saying that when I was on

the grounds I priced certain work according to the quality of the work.

Q. Will you indicate in your deposition where you found any defect in the laying of those 61,000 brick?

A. In some of the work I seen up there I saw some very poor work, and I saw some very good work too, and I set my price then according to the quality of the work. Of course, just now without being on the ground, I cannot answer what this is for and what that is for. I can state that some of the work not being done so well as other parts, I put it down lower.

Q. You have stated that you charged 90,000 vitrified brick at $18.00 a thousand instead of $19.00 a thousand as you did the 61,000 vitrified brick because the 90,000 were roughly laid. Now I desire to ask you again why it was that you charged the 61,000 at $19.00 and subsequently allowed us $20.00 a thousand for the 46,000 brick of the same class?

A. Because the 46,000 was still better work.

Q. Now what was the defect in the 61,000 brick?

A. I don't remember it now.

Q. Were the 46,000 laid in Louisville or Portland cement?

A. I think it is Portland cement, is my recollection; it is Portland cement from the price.

Q. And you allow us $20.00 or more in the Portland cement?

A. The Portland cement was a fraction more.

Q. Well would you increase this price on account of the fact that they were laid in Portland cement?

1893 A. I think this price is reasonable enough.

Q. When you made this statement out about the 46,000 brick, you didn't say anything about Portland cement; did you mean to say they were laid in Portland or Louisville cement?

A. In Portland cement.

Q. Why was that not put in your statement then?

A. I don't know sir.

Q. But you do know that as between Portland cement and Louisville cement there is a difference in price?

A. Yes sir.

Q. On page "10" of your original statement you reduce our price for concrete flooring, you reduce our price of 16 2/3 cents a square foot to 13 cents. Now what are the elements that enter into a concrete floor, and what do they cost respectively?

A. It takes sand that costs about 70 cents a yard; it takes cement—you can use Louisville cement or Portland cement for the first layer, but the top layer must be Portland; it takes gravel, or broken stone, and it takes some water.

Q. And it takes labor too don't it?

A. Yes sir.

Q. You cut down our price on the stairway from the boiler house to the pump room from $50.00 to $22.00; why did you do that?

A. Because it is not worth $50.00 to build it.

Q. What is it built of?

A. Wood.

Q. Did you figure on it?

A. Yes sir.
Q. What kind of wood is it built of?
A. Yellow pine.
Q. Heart pine?
A. Yes sir; not all heart either.
Q. On page "11" you cut down our price of painting $50.00. How did you get at that result?
A. We measured by the square yard the surface painting, and painting is done in this town for 15 cents a yard.
Q. Two or three coat work?
1894 A. I have had three coat work done for 15 cents many a time.
Q. Was that the regular or a special price?
A. The regular price.
Q. You could get it done you say for 15 cents a square yard?
A. Yes, sir.
Q. Mr. Getaz, the first item on page "12" of your original statement, being 12,000 common brick in cement at $15.00, reduced to $12.00 by you, the next item is 9,000 brick in cement at $18.00, reduced by you to $14.00. What is the reason you make the difference in the prices you allowed for those two items?
A. Some of the brick work in that filter station required special pains to do it, and that 9,000 brick must have been one of those special places. I could not tell you what place it is without going on the grounds.
Q. You say "must have been." Do you know whether it was or not?
A. I know it was special work, in making the price.
Q. Now what kind of special work?
A. There were some round or curved places that required more special work for the brickmason.
Q. Now where are those 9,000 brick you speak of?
A. I don't know now what place they were in.
Q. Do you know whether they were at the filter station or the pump station?
A. I take that to be the filter station.
Q. You say they are at the filter station?
A. Yes, sir.
Q. But you cannot give me any special reason why you made that variation of price?
A. Because some places required special work—it was difficult to do the work is why I made a change in the price.
Q. Now on page "13" you have allowed for 10,500 vitrified brick in lime in the walls of the engine room $16.00. Why not $18.00 or $19.00 or $20.00 as heretofore?
1895 A. Because there was no cement used in that.
Q. What did you allow for the brick?
A. Twelve dollars.
Q. Twelve dollars for the vitrified brick?
A. Yes, sir.

Q. How much Portland cement does it take to make a cubic yard of cement concrete?

A. About one barrel.

Q. Don't it take two?

A. No, sir.

Q. Are you positive about that?

A. If it is good Portland cement, one barrel is enough.

Q. In what proportion do you mix it?

A. Three of sand.

Q. How much rock?

A. One cubic yard of rock.

Q. What proportion?

A. Well, now for one cubic yard of concrete it would take one cubic yard of broken stone or gravel and one-half to three-fourths of a yard of sand and about one barrel of cement or one and one-fourth barrels and just as little water as one can put in it.

Q. Now would you guarantee concrete of that kind made of that proportion of cement in it for strictly water-tight work?

A. If it is the best grade of cement I would; If it is a poor grade of cement I would not.

Q. If it is an ordinary grade of cement it would not do it?

A. No, sir.

Q. Then, Mr. Getaz, oughtn't you to use more cement than that when you make water-tight work?

A. I think if properly mixed up and the work properly done it would make it water-tight.

Q. Did you ever do any water-tight work in Portland cement concrete?

A. I did considerable concrete work for the old East Tennessee road and the Southern Railway.

Q. Now what would the cement cost you for a yard of concrete?

A. From $3.25 to $4.00.

1896 Q. Which one would you figure it?

A. Four dollars.

Q. What would the sand cost?

A. About 50 cents.

Q. And what would the broken stone cost?

A. From 95 to $1.05; $1.05 would be the market price, and then about 10 cents for water. $1.00 for labor is enough where there is a quantity of it.

Q. Now how about spreading it?

A. That covers everything.

Q. Now that is the cheapest you can get it done at?

A. Well, I have done it cheaper than that.

Q. I am talking about for the purposes of this company—water-tight—isn't that the cheapest?

A. I have seen builders figure on 75 cents labor and $3.50 for cement for first class concrete.

Q. Now then what are you going to allow, if anything, for forms to enclose your concrete, where it is an enclosed structure?

A. It depends upon the location and kind of work.

Q. It will cost something won't it?

A. On the filter station you have down there, I think 80 cents a cubic yard would be plenty, and more than enough to cover the expense of the wood work. In some concrete work it don't require any form or any wood work, except a platform to spread your concrete.

Q. Wouldn't that all figure up $7.40 instead of $6.50 as you have it?

A. I make it $6.60 where no wood work is required.

Q. And where wood work is required, how much?

A. In one item there, I have the wood work by itself.

Q. I say in this case, how much?

A. I wish to ask you what concrete you refer to?

Q. I refer to item to be found on page "19" of your orig-
1897 inal statement, where you cut us down from $7.50 to $6.50?

A. On the same page you will find an item for the form used in that concrete at 80 cents per cubic yard.

Q. In making your estimates upon the settling basin, did you make any allowance at all for special gutter forms in the concrete at the bottom of the settling basins?

A. I did not, because I did not know the price. I let the figure of Mr. Wheeler stand for drainage.

Q. So you made no allowance for those special constructions?

A. Not for drainage for gutter, no, sir.

Q. You have however reduced the price from $2.00 to $1.50 haven't you? found on page "19" of your original statement?

A. This is flooring; I thought you asked about gutters? This is for the floor only.

Q. You made no allowance for the gutters?

A. No, sir.

Q. And if they are special constructions costing extra, they should be added to your estimate shouldn't they?

A. Yes, sir, you will find them in Mr. Wheeler's estimate.

Q. You have cut us down on the price of tunnel between pits at river station from $200.00 to $180.00?

A. I did.

Q. Why did you do that?

A. I measured the cubic yards of stone there and I couldn't make it $200.00. I don't remember what the number of cubic yards were, neither the price I put it in.

Q. How did they get the stone out of there; did they blast it?

A. I suppose they had to—it is solid stone some places.

Q. Suppose they dug it out without any blasting, wouldn't it be worth more?

A. Well if they had to blast any, I think $180.00 would cover it.

Q. But suppose they couldn't blast on account of the
1898 proximity of the engines?

A. It would cost more if they could not blast it in taking it out.

Q. Don't you know they couldn't blast in there as close as those places as to the engines?

A. I don't suppose they could, but it is not all solid rock.
Q. Are you sure of that?
A. In the line of the bank of the river, it was loose stone.
Q. I understand you don't find any fault with the price of enameled brick?
A. No, sir, I couldn't get at a price, and I suppose it was that much. I know at one time I paid $95.00 a thousand for the same brick.
Q. Don't you think it would have been fair to have brought us up to your prices in that case, as well as lowering us to the prices in the other cases?
A. I suppose Mr. Wheeler had good cause to charge that.
Q. Isn't it as fair to let us up on that as to bring us down on other things?
(No answer.)
Q. Well, I don't insist on an answer. You say the price of handling and laying the enameled brick is excessive?
A. It is.
Q. Now, Mr. Getaz, did you find that just from force of habit?
A. From my past experience in that work. It might have cost $7.00 a thousand to lay them.

The further taking of this deposition was adjourned until 9:00 o'clock A. M., July 24th, 1903.

1899 FRIDAY MORNING, 9:00 A. M. *July 24th*, 1903.

The further cross-examination of the witness DAVID GETAZ resumed.

Q. Mr. Getaz, assuming for the purposes of your deposition that the Knoxville Water Company bought the enameled brick for the engine pit and was compelled in addition to pay the drayage on them, what would be a reasonable amount of drayage per thousand of brick?
A. On that quantity of work, about $1.50.
Q. On what quantity?
A. One dollar and a half on the thousand.
Q. Suppose then that after they were delivered on the ground, the company had to have them handled again and sorted and paid 75 cents a thousand for that work, would that be unreasonable?
A. No, I don't think it would be.
Q. The next item would be laying the bricks in Portland cement. Do you think in view of the way in which that work of construction with the enameled bricks was done that three barrels to the thousand of brick would be excessive?
A. Yes, sir, it is.
Q. How much would you allow for the work; how much Portland cement would you allow for the thousand brick?
A. In work like that I should think that two barrels would be enough; in fact I know it would be enough.
Q. Assume that the joints between the old work and the new

work had to be grouted in, would you allow anything extra for that?

A. Yes, sir.

Q. How much cement extra would you allow for that?

A. I figure that two barrels would do the work, the backing and also the laying of the work.

Q. At how much a barrel now would you allow for that?

A. Three dollars or $3.50.

Q. I will ask you to fix what you think was the proper price at that time?

A. Three dollars.

1900 Q. How much would you allow for sand per thousand brick?

A. About one yard.

Q. At 75 cents?

A. At 70 cents.

Q. And you would require the mason to lay how many bricks a day?

A. In that work about 500 brick.

Q. And you would pay him for the day's work, how much?

A. Two and one-half ($2.50).

Q. Now don't you think that quality of work would require a higher price for the brickmason than this other work we have been talking about?

A. $2.50 a day was the best price paid to bricklayers at that time.

Q. What year do you allow that for in this instance?

A. I don't remember what year it was built, but it was before 1900.

Q. Assume that the work was done in the year 1900 and in that part of the year 1901 prior to March 31st, 1901, what would a brickmason's labor be worth then?

A. In the year 1901 I had a very good bricklayer at $2.50 in Knoxville.

Q. What would be a fair price as of that date for doing this kind of work?

A. $7.00 a thousand laid, for labor on the thousand.

Q. Seven dollars a thousand for all the work of laying?

A. Yes, sir, and making scaffolding.

Q. Including helpers and everything else?

A. Yes, sir.

Q. Then you would allow for the bricks $75.00 a thousand and would allow only $7.00 more for all purposes, including cement and labor?

A. No, excuse me, I mean only labor and helper at $7.00 a thousand.

1901 Q. You would allow $7.00 for labor?

A. Yes sir.

Q. You have allowed $17.00 a thousand instead of $36.00 for hauling and handling and laying these enameled brick. The difference between you and Mr. Wheeler and Mr. Kimball consists almost entirely of the difference between the prices to be paid masons and their helpers, does it not?

A. I don't know what Mr. Wheeler in his schedule allowed for waiters for brickmasons and helpers.

Q. I am not asking you that; I am asking if the difference between your price and the price of Mr. Wheeler is not almost entirely the difference, first, the price to be paid the mason, second the price to be paid the helper and third the estimates that you respectively place upon the number of bricks that a mason can lay in a day. Do not these three items make up the difference between you upon the one side and these gentlemen upon the other side?

A. Yes sir I think that is very much like it.

Q. You have cut down our price for removing and rebuilding a brick laboratory from $200.00 to $150.00. Please give me in detail the way that you reach your conclusion?

A. In this case I did not measure the quantity of material. The building is exceedingly small, and I could not see $200.00 in it in labor to remove it and rebuild it.

Q. So you cannot give me the details?

A. I cannot give you the details.

Q. And you merely guessed at the quantity, is that right?

A. Well in my opinion the price was too high.

Q. Then if not a guess it was merely a matter of opinion?

A. Yes sir.

Q. Mr. Getaz, you have also cut us down on the price of our grass seed. Do you claim expert knowledge in the matter of grass seed?

A. I have bought grass seed often to cover a surface of ground and comparing it with the ground covered with the seed in the
1902 schedule of Mr. Wheeler, I find it will not take that amount of seed.

Q. That is on a very steep hil-side, isn't it?

A. It is.

Q. Then if the rains were to wash the seed away after it had been sown, it would be necessary to sow more wouldn't it?

A. Most likely.

Q. You don't know whether that actually occurred or not, do you?

A. I do not know.

Q. A second sowing under circumstances of that sort would be as legitimate as the first sowing wouldn't it?

A. Just about the same.

Q. Now you don't know whether the Knoxville Water Company had to expend the amount of money claimed by it for that purpose or not?

A. No sir.

Q. So that the effect of your testimony on that point is that in your opinion it could be sown with grass seed once with the amount you name?

A. Yes sir.

Q. And that is true also of the subsequent reference you make to grass seed in your estimate?

A. Yes sir.

Q. You have allowed for iron "I" beams, timber and flooring for

the intake tower $75.40 where we charge $90.00. Give me the elements which enter into your calculations there?

A. When I figured the cost of those angle irons, I had the Carnegie table for the weight of angle iron and "I" beams.

Q. Now there are different weights for different sizes of "I" beams. What weight did you use for that class of "I" beams there?

A. The medium weight.

Q. How much was that?

A. I don't remember without having the table to look at.

Q. Do you know that they are not the heavier weights?

A. The beams are not heavy weight.

1903 Q. You are certain then that they are not heavier than medium?

A. About medium is what they are.

Q. Do you know that from actual knowledge of that kind of thing, or do you simply infer it from a superficial examination.

A. I examined the beam.

Q. And you say it is medium weight?

A. It is not the heaviest weight.

Q. Now what is the weight approximately?

A. I cannot tell you exactly. If I had the Carnegie table I could figure it out.

Q. I want your opinion?

A. I had the table at the time I made the calculation but I hav-n't the table now.

Q. We are entitled to have your opinion independent of tables and other things?

A. I cannot give it to you.

Q. How did you get to the beams to examine them?

A. There is a beam across the top of the tower—the floor on top leaves a space between the plank, and we could get at the beams.

Q. How wide are they?

A. I think they are 6 inches.

Q. The spaces that enabled you to make the examination?

A. No sir, the height of the beam, but I am not sure.

Q. Is it more or less than 6 inches?

A. It is more if anything.

Q. Isn't it more than six?

A. It may be so.

Q. Did you figure on six?

A. I figured on what it was at that time.

Q. Did you measure them?

A. Yes sir.

Q. How did you measure them?

A. I had a two foot pole.

Q. And your statement don't show what that measurement was?

1904 A. No sir not in this paper.

Q. And you don't remember now what that measurement was?

A. No sir.

Q. But you think it was six inches?
A. It was six inches or more.
Q. What do you call a medium "I" beam?
A. It is a beam that is between the lightest and highest weight.
Q. What is it in weight?
A. I cannot tell you without looking at the table.
Q. You don't know the weight of it now?
A. No sir. I knew it when I made this estimate.
Q. But you don't know the weight now and you cannot define what you mean by "medium"?
A. Yes sir medium weight is between the lightest and highest weight.
Q. Now define medium weight in pounds and ounces?
A. I would have to have a table.
Q. What is the floor of the Reservoir composed of?
A. In the estimate we have there, we couldn't get at it. I don't know whether this has been corrected or not, but I figured it out 6 inches thick of concrete, and if more my estimate is not correct, and if it is 12 inches the price I have in the estimate should be doubled.

Mr. PICKLE: You mean on concrete?

A. On concrete, yes sir.
Q. What are the walls of the Reservoir composed of?
A. Dirt, earth.
Q. Is there no concrete facing?
A. Yes sir, concrete facing on the wall.
Q. Now is it concrete only?
A. I couldn't get at it. I took it to be 6 inches of concrete.
1905 Q. You assumed at first it to be concrete on the bottom?
A. Yes sir.
Q. And then you assumed a depth of 6 inches on the sides and bottom?
A. Yes sir.
Q. How deep is the Reservoir?
A. Seventeen feet eight inches.
Q. How do you know that?
A. I measured it.
Q. How did you measure it?
A. I put a little bridge projecting over the bank a certain distance, and I took a line with a piece of iron on the end of it and it went down, and when the iron struck water—the bottom—I stopped it, and the water made a mark on the line.
Q. How long was your bridge?
A. The measurement I guess was taken from 15 to 18 feet of the edge of the bank.
Q. Do you know that you got beyond the slope of the bank?
A. Yes sir.
Q. How do you know that?
A. I measured the slope of the bank at the partition wall. The slope is three feet on three feet.
Q. Are you positive that you got beyond the slope of the bank?

A. I am very sure of it.

Q. Now you said in regard to the bottom of the Reservoir that if the concrete was more than 6 inches thick on the bottom that your price should be increased?

A. Yes sir.

Q. That applies also to the sides, doesn't it?

A. Yes sir.

Q. Did you examine into the composition of the partition embankment between the two Reservoirs?

A. I did not. I took it to be earth like the embankment around the Reservoir.

Q. Don't you know that that kind of a partition would not be sufficient for water works uses?

1906 A. It would be sufficient there; it is wide enough to carry the water without falling.

Q. Have you had any experience in building reservoirs?

A. Not that size.

Q. Have you had any experience in hydraulic engineering of any kind?

A. Very little.

Q. Do you know whether or not according to good engineering, the natural earth bank, especially in porous soil like this would be sufficient for the purposes of the bank between the two reservoirs?

A. From what I have seen of earth embankment on water I would say yes.

Q. What have you seen to indicate that?

A. I have seen banks to hold water for water-mills, and banks to form lakes and such like.

Q. What do you allow for the excavation of those two reservoirs?

A. Twenty cents a cubic yard and five cents more to give a shape to the bank or embankment, or 25 cents in all.

Q. That assumes that it was all earth excavation?

A. Yes sir.

Q. Well do you feel safe in assuming that it was all earth excavation?

A. When I was there, and I was there before it was built, I didn't see any rock taken out.

Q. Did you ever see any rock taken out?

A. I did not.

Q. When did you ever see an equal area in this country without rock?

A. I don't know whether I have seen any or not.

Q. Don't your experience tell you that it is unjust to the water company to assume that the entire excavation was earth excavation?

A. I don't know whether I assumed the fact or not.

Q. Well if you allowed anything for rock, your price of 20 cents is too little isn't is?

A. Yes sir; 25 cents.

Q. Well now Mr. Getaz, how can we be certain about that matter?

A. I cannot settle it myself.

1907 Q. Have you found out what the next lowest bid to yours for building the Knox County Court House was?
A. No sir.
Q. Have you found out what the highest bid was?
A. No sir.
Q. Have you made any effort to find out?
A. I did not.
Q. Who prepared your statement in this case, you or Mr. Munding?
A. Both together.
Q. Is the language yours or his?
A. Mine.
Q. What did you actually measure in doing this work?
A. Several pieces of the work; one is the old engine pit at the reservoir station, one the new boiler house and nearly all the work in the new part of the station itself at the river, and we measured the reservoir and all the roof beams, &c. in the filter station.
Q. And wherever you measured you arrived at substantially the same result that Mr. Wheeler reached?
A. Yes sir, as to quantities.
Q. When it comes to matter of opinion as to prices you have almost invariably differed from Mr. Wheeler, have you not?
A. In most of the items I have.
Q. You have also differed from Mr. Kimball in those respects?
A. I don't know what Mr. Kimball figured out: I never heard.
Q. Did you adopt a fixed rule of reduction of Mr. Wheeler's amount or prices?
A. No sir we did not.
Q. Do you recall any one of his prices that you approved except those where you could not make your own conclusions on account of removal or something of that sort?
A. I don't recall any but I know there are some.
Q. A very small proportion of them?
1908 A. Not a very large proportion.
Q. Did you read Mr. Wheeler's deposition sufficiently to find that he stated that he had knowledge of the prices of things?
A. No sir I did not read it enough to know.
Q. How do you explain the variation between yours and Mr. Wheeler's prices ?
A. I base my prices on my experience in the business and what I have paid for work similar to this.
Q. What do you understand him to base his on?
A. I don't know what he based his on.
Q. Did you examine his deposition sufficiently to know?
A. No sir I did not; in fact I didn't read but one or two pages of his deposition as I didn't care to look at it.
Q. Is it not a fact that during the period extending from say the year 1900 down to March 31st, 1901 that the prices of material and of labor alike were higher than the prices which you have allowed here?

A. If it is, it is very little. The increase came in the Spring of 1901, about April I think that the prices went up very fast.

Q. In the Spring of 1901?

A. Yes sir.

Q. Well March is in the Spring of 1901?

A. I don't know whether you can count that in the Spring or not. On April the 1st wages were increased by Union labor.

Q. Do you mean to say that in March 1901 first class brick masons got only $2.50 a day?

A. I think some of them got more than that.

Q. Hadn't Union prices advanced?

A. Union prices had advanced some.

Q. How much was it?

A. I don't know.

Q. Practically all the skilled labor in town is Union labor isn't it?

A. It is now, but it wasn't in 1901.

Q. You don't deny that the Knoxville Water Company
1909 would have been justified in hiring Union labor and paying Union prices at any time, do you?

A. They had the privilege to do it.

Redirect examination by Mr. PICKLE:

Q. Mr. Getaz, do the prices of labor, material, &c., that are set out in your schedule or report made part of your deposition, hold as substantially given up to the 1st of April 1901?

A. Yes sir.

Q. You have said that in making some of your estimations you were controlled in estimating the same character of work at different prices by the fact that some of the work was better executed than others. Now is it a fact that good work costs more in its execution than poor work?

A. Yes sir.

Q. You stated in your cross examination that the firm of which you were a member made a failure on account of some railroad work which you had undertaken and lost money on. Now I will ask you whether or not in your work as a contractor and builder you have been successful and made money?

A. I have.

Q. And that notwithstanding you may have taken or gotten work by bidding lower then some other contractors in the city?

A. Yes sir.

Q. It is universally true that the lowest responsible bidder gets the work?

A. Yes sir.

Q. In your estimates of vitrified brick you have allowed $12.00 a thousand I believe you state?

A. I have.

Q. Now if in point of fact the water company paid $11.00 per thousand for these vitrified brick and not $12.00, what effect would that have upon your estimate?

1910 A. That would be $1.00 on each thousand brick in my estimate.

Q. State whether or not you adopted the classification of bricks as being vitrified or otherwise as shown in Mr. Wheeler's report?

A. I have.

Q. Were or not portions of the work classified as vitrified brick covered by cement and paint?

A. Yes sir, cement but not paint.

Q. State whether or not you and Mr. Munding made a careful measurement of the contents of the reservoir excavation?

A. I have; I don't know whether Mr. Munding made it or not. Mr. Munding and I took the sizes and the depths, and I made the figuring as to capacity and quantity and Mr. Munding and I set the prices.

Q. Did you make the calculations upon actual measurements made by yourself?

A. I had my son who is a civil engineer to help me.

Q. Mr. Getaz, in the statement you have made you have allowed 25 cents for excavation?

A. For reservoir, yes sir.

Q. If in point of fact only 12½ or 15 cents was paid for that excavation, what effect would that have upon the prices?

A. It would cut the cost down on excavation.

Q. Going to the brick work, you have allowed in your estimate $8.00 per thousand for laying common brick in lime mortar in walls, and for some character of work, some larger prices in your estimate? Now I will ask you to state whether or not you had brick work done, and upon what buildings and at what prices during the period from 1882 to 1901; just name some of the jobs of work?

A. In the year 1884 I built the Brookside Cotton Mills; I was the general contractor on that job. The brick work there was done for $6.50 and less on the thousand. In the year 1885 I
1911 built the Court House, and none of the brick work there exceeded $7.00 for common brick in lime. I was one of the contractors for the Lawson-McGhee Library Building. The brick work there did not exceed $7.50 for common brick in lime mortar.

Q. Well did you build the Evans Marble Mill?

A. Yes sir.

Q. What was the cost of brick work to you in that building?

A. The brick work on the outside work, inside work and cement work did not exceed $8.00 a thousand.

Q. Did that include brick laid below ground as well as above ground?

A. It did in that last building, also in the Brookside Cotton Mills.

Q. You state that you were general contractor for these buildings did you sublet the brick work?

A. I did for the Court House and the Evans Marble Mill.

Q. At the prices named?

A. At the prices named.

Q. At those prices did the subcontractors furnish all the material, brick and labor?

A. Yes sir.

Q. Now in estimating the number of brick in these several buildings by the rule that you adopted and pursued, I understand you to say that you found the number to be substantially the same as that stated in the estimates of Mr. William Wheeler?

A. Yes sir.

Mr. CALDWELL: If the Court please, I shall have to object to that method of examining the witness I think the witness is an intelligent man and able to answer the questions without being led.

1912 Q. You were interrogated as to the several elements or the cost of the several elements that enter into brick work, among others lime, mortar and cement. State whether or not these are embraced in the estimate of the cost of the brick or some of them?

A. Yes sir.

Q. Then under your method of estimation are they to be included in the cost of the brick as you gave it in?

A. I think I had better tell you the way I made the estimation.

Q. Well state that?

A. For brick laid in lime mortar I have an $8.00 charge per thousand. This includes the cost of the brick, the sand, the lime, the labor and the scaffolding.

Q. Well why is it that the lime, sand &c. is counted as brick?

A. In Knoxville we contractors and builders figure up 21 brick for each cubic foot, but it takes only 17 actual brick, and there is a saving there of 4 brick; also we measure each window and door making a surplus of brick. The surplus of brick is more than we pay for the sand, the lime and scaffolding.

Q. Well I will ask you whether or not they enter into and increase the cubic contents of the wall, that is the lime, sand, mortar and cement?

A. Why yes the space between these places is filled with sand, mortar and lime.

Q. And composes a part of the cubic contents of the wall?

A. Yes sir.

Q. I will ask you to state whether or not in case of very high priced work if the cost of cement is not largely accounted for in the same way?

A. Yes sir it is in the same way.

Mr. CALDWELL: I desire to again object to leading the witness as I have objected heretofore.

1913 Mr. PICKLE: I will endeavor to avoid it. I don't intend to do it, and if I should lead him, just make your exception and I will quit.

Q. Mr. Getaz, in your cross examination in regard to the 85000 brick laid in cement, you expressed some doubt whether it was in Portland or Louisville cement. I will ask you to state whether or

not you have refreshed your recollection and if you can state now which it was, and if so which was it?

A. I can. I looked it up, last night and I found my estimation was in Portland cement.

Q. Is it possible to determine in completed work whether one or the other kind of cement was used?

A. It is not always possible to do so.

Q. State whether or not you have assumed, for that reason, the correctness of Mr. Wheeler's statement?

A. Yes, sir, to a certain extent I have.

Q. Mr. Getaz, in regard to the Tool and Storage House estimated at $161.40, which you have stricken out of Mr. Wheeler's estimate as a double charge, I will ask you to please explain fully why you did this?

A. I found that same house in Mr. Wheeler's schedule on pages 27 and 28. That Tool House priced at $151.40 has been moved and increased in size to 38 feet by 14 feet, and in the schedule furnished by Mr. Wheeler, he had it priced over, including the extra quantity of material on labor to increase the size.

Q. And it was for that reason you struck out the first estimate?

A. Yes sir.

Q. There is an item on stairs or spiral stairs which was estimated by Mr. Wheeler at $250.00 and by yourself at $225.00, making an excess of $25.00. Was your estimate based upon the present stairway that stands there?

A. My estimation is on the present stairway in the old engine pit. That stairway is not a spiral stairway, but it is a straight stairway, with iron frame, wooden steps and brass railing I estimated 1914 the cost of that stairway at $225.00 put up.

Q. Now if this estimate of Mr. Wheeler's applied to a stairway that was already gone, this item of yours should go out should it?

A. That stairway is there. I don't know whether it should go out or not. I don't know whether Mr. Wheeler got it anywhere in his schedule.

Q. At any rate that was the stairway upon which you were figuring—the one that is there?

A. Yes sir.

Q. Mr. Getaz, had the Union labor organization fixed prices prior to the 1st of April 1901—a standard or a scale of prices?

A. Yes sir there was a Union in Knoxville but it wasn't strong, and I did not employ Union men unless I wanted to or not. That is I wasn't compelled to take them. I could hire other men which did not belong to the Union, which I did often.

Q. State whether or not subsequent to that date they organized?

A. They have, for the past two years, but still there have been a great number of non-Union men employed.

Q. Has there or not been a decided rise in prices since April 1901?

A. There has.

Q. What causes have contributed to that?

A. A great demand for labor and the large amount of building done.

Q. Has the demand been unusual during that time?

A. It has, and is today.

Recross-examination by Mr. CALDWELL:

Q. Mr. Getaz, adopting your rule of measurement of brick work, how many brick will there actually be in a space in a wall which you calculate as containing a thousand brick?

A. It runs from 700 to 800 brick, according to the size of the brick and how close together laid.

1915 Q. There will be an actual one thousand in a space estimated under Mr. Wheeler's rule to contain one thousand, will there not?

A. I don't know that I understand your question? Mr. Wheeler, I take it from his estimate must have followed the same rule that I did. He has counted 21 brick, which I counted, where there were only 17 actual brick.

Q. Suppose that Mr. Wheeler and Mr. Kimball allowed 17 bricks to the cubic foot and allowed nothing for openings, then a thousand brick according to their estimate would be an actual one thousand brick wouldn't it?

A. Yes sir, but if they did so their estimation has too many brick.

Q. Why do you make that addition to your answer when I didn't ask you about it?

A. Because when I measured one wall at 21 brick to the cubic foot and they measured 17, they must have a bigger square to cover.

Q. Now Mr. Getaz I want you to tell me again any particular brick work that you measured over there, and I want you to select the part you are surest about, for I want to ask you the details concerning it?

A. I have measured the old engine pit and I have measured the new boiler house.

Q. Well now, let's have the old engine pit. How many bricks did you find in the old engine pit?

A. 90,000 brick.

Q. How did you get that 90,000?

A. I took the height of the pit.

Q. What was the height of the pit?

A. I cannot tell you; I didn't keep those items.

Q. Well I want you to get them for I want an analysis of the measurements?

A. I will have to get the paper or go back to the building

1916 and take the survey again.

Q. Well if you have any other piece where you have got the details of your measurement, I am willing to make a test on that, but unless you have I will ask you to go back and work out the heights, depths and everything else?

Mr. PICKLE: I desire to except to that. The Master can readily see where this will lead to if all these calculations go in, for if the

witness is required to go back and put in these calculations, it will be an endless job.

COMMISSIONER: I think the question is reasonable and that he has a right to make that test of the witness, the property being here in town where he can make it, but I should stop him if he undertook to treat the whole property the same way.

A. The height is 31 feet 6 inches including one foot six inches for footing below the floor of the pit. The length around the pit is 102 feet taken on the outside of the brick work. The thickness of the wall, taken where the wall had been cut through for a door, is two brick in length or one foot four inches, or one foot six inches according to the length of the brick. From these I make 89,963 brick counting 21 brick to the cubic foot.

Q. The doors that you measured are how far up from the bottom of the pit?

A. I didn't measure that, but I suppose the door is 2/3 of the height.

Q. Proper construction then would require the wall to be thicker below than at that that point, to hold the dirt?

A. I had no way to get at that, but as the old pit is inside of rock I don't see any necessity of a heavier wall.

Q. Assuming that the river rises as high as those doors, throwing the water pressure back of the walls, that would require a thicker construction below?

1917

A. It would if it was in earth, but as it is solid rock next to the bank there would be no pressure there that I know of.

Q. Your answer assumes that the rock is quarried out to the exact dimensions of the wall?

A. It is, or very near it.

Q. Assuming that it is quarried in a ragged manner as it would be in blasting?

A. Well I suppose it is more or less.

Q. Then there would have to be a backing more or less against the wall?

A. Yes sir.

Q. And you don't know whether that is the case or not?

A. No sir.

Q. You measured the depth as you have it now?

A. Yes sir.

Q. And you don't know whether or not the depth of the old pit and the walls of it are 33 feet?

A. No I do not.

Q. How many bricks would the amount ascertained or determined there by you figure according to our method of assigning 17 brick to the cubic foot?

A. If I figured 17 brick to the cubic foot, I wouldn't have as many brick as I have here.

Q. I know, but I want to know exactly how it would work out?

A. I would have to do some figuring to find out that.

Q. Would it take you long to do it?

A. No sir, not but a minute (Witness here makes calculation.) 72,828 brick counting 17 brick to the foot.

1918 Redirect examination by Mr. PICKLE:

Q. Mr. Getaz, assuming that the engineer's method of calculating the number of brick, is to take the cubic contents of the wall and divide it into cubic feet and multiply it by "17" to ascertain the number of brick, I will ask you whether or not that would not include the sand, lime and cement that went into the wall as brick?

—. If we count 17 brick to the foot we have to have the sand, lime and cement to make up the cubic foot.

Q. And they would enter into the cubic contents of the wall?

A. Yes sir.

Q. And they go into the price of brick?

A. Yes sir.

Q. Whether that price be $18.00, $20.00, $50.00 or $75.00 a thousand?

A. Yes sir.

Q. These figures are taken from an actual measurement you made when on the witness stand?

A. Yes, sir, from the pit itself.

Recross-examination by Mr. CALDWELL:

Q. Now Mr. Getaz, let's go back to the question of prices again. Did these prices of labor and material remain down until midnight the 31st of March 1901 and then rise thereafter?

A. They began to rise in 1900, but it was very little; that year I could get my old men at the same price I had before and new men too, but in 1901 the increase of wages began so much so that I had to raise their wages in April.

Q. How about March 1901?

A. It was the same as it was in 1900.

Q. Could a new contractor like the water company go into the market in 1901 and get labor at the prices you did?

A. I would not have done it for work that would last over during the Spring.

1919 Q. My question is could a new contractor, such as the water company was in this case have gone into the market in March 1901 and have gotten labor at the same prices that you got your old men at?

A. I don't know whether the water company could have done it or not.

Q. Did you do it simply because you were getting your old men again?

A. Well men in the business of building can generally get labor — than men who are not in the business.

Q. Take the year 1883 for instance and compare it with the year 1900. Were the prices of labor and material as low in 1900 as in 1883?

A. It was a fraction lower in 1883.

Q. How much lower?

A. I expect from 5 to 10 per cent. lower.
Q. How was it between 1883 and 1884?
A. It remained about the same.
Q. Did it go up or down?
A. We didn't make any change in our pay-roll.
Q. Well did the prices go up or down without regard to your pay-roll?
A. To my knowledge not to amount to anything.
Q. How about 1885?
A. It may have been a fraction higher in 1885.
Q. How about 1886?
A. The same as 1885.
Q. How much higher were they in 1886 than in 1883?
A. Oh I don't know exactly; some higher but I don't know exactly how much.
Q. What per cent?
A. I can't tell you.
Q. How about the year 1887?
A. In 1887 it was the same as in 1885 and 1886 is my
1920 recollection.
Q. What was it in 1888?
A. The same.
Q. In 1889?
A. It began to go down.
Q. In 1890?
A. Down.
Q. In 1891?
A. 1891 to 1892, 1893, 1894 and 1895 very low.
Q. Lower than in 1883?
A. Yes sir.
Q. How much lower?
A. Fully ten per cent.
Q. Then in 1895?
A. The same.
Q. In 1896?
A. It began to come back to the years 1883 and 1884.
Q. Did it go up to as high as 1883?
A. I think it did up to 1900.
Q. Now I had only gotten down to 1898; I want to know how it compared with 1883?
A. About the same.
Q. In 1897?
A. About the same.
Q. It didn't rise in 1897, 1898 or 1899?
A. It began to rise in 1900.
Q. In the Spring of 1900 how would it compare with 1883?
A. It would be a little higher; it would be about the same as in
1885.
Q. Did it rise during the year 1900?
A. It did in some respects.
Q. In what respects?

A. Well the Union got strong, and some builders paid higher and some did not.

Q. Did materials remain at the same price?

1921 A. They got a little higher.

Q. Wasn't material so scare, especially brick in 1900 that they could hardly be obtained at all?

A. It did, but not until late in the summer.

Q. Didn't it continue all through the year 1900?

A. No sir.

Q. I understand you to say that during what was known as the boom here 1887-9 the prices were lower than before that time?

A. My recollection is that the boom was in 1885-6. I may be mistaken in the time of the boom.

Q. Didn't the boom commence in 1887?

A. I was a little early in my statement about two years then.

Q. Now you have not had any experience in building houses and other appointments connected with water works, but it is a fact is it not, that in engine houses, filter plants and things of that kind special construction is needed and it is a higher grade of work?

A. It may be needed, but it was not used in the work I have seen of the Knoxville Water Works.

Q. Why did you add that last sentence when I wasn't asking you about it?

A. That is my opinion of the quality of the work of the Knoxville Water Works buildings.

Q. Had I asked you whether its work was good or bad?

A. No sir not at this time.

Q. Then why did you volunteer an opinion about it?

A. I don't know.

Q. Would you have built these water works, or those parts of them that you have examined with a poorer grade of material than you have allowed us?

A. If I had had the contract to build the buildings, I would have used the same material you did.

Q. You would not have used any inferior material?

1922 A. No sir.

Q. Would you have used any inferior labor?

A. No sir.

Q. Then you have allowed us the lowest material and the lowest grade of labor that you think is allowable in a case of this kind?

A. I did not sir.

Redirect examination by Mr. PICKLE:

Q. Mr. Getaz, state whether or not the prices you have fixed in your statement in this case are prices that are reasonable in your opinion for any and all the years that have been named, and are prices at which you would have been willing to have taken the work?

A. Yes sir those are the prices at which I would have taken the work.

Q. I will ask you to state whether or not the prices you have

fixed were higher or lower than the prices of the years which you say ruled—some lower than other years?

A. I tried to make it as correct and as near as I could get them for the years the buildings were put up.

Q. Now Mr. Getaz, you have stated that the rise in prices began in 1900 and proceeded gradually or slightly until the 1st of April 1901. Now what causes, if any, operated to spring prices at that time and from that date and increased them decidedly all that time?

A. Early in 1900 demand was made for men and material, but the price made a very small increase during the year 1900.

Q. Well what occurred about the 1st of April 1900 to raise the prices rapidly from and after that date?

A. The great demand for building material all over the United States, on account of the great number of buildings put up and also on account of the formation of Union labor dictating prices in wages.

1923 Recross-examination by Mr. CALDWELL:

Q. Mr. Getaz, did you confine your estimate in this case to the year 1899 as its closing limit on account of the fact that prices began to rise immediately thereafter?

A. The prices I have included 1900.

Q. Well why did you stop at the year 1900?

A. The price in the year 1900 was the same as in the spring of 1901.

Q. Well why did you stop at 1900 then?

A. I don't know whether I stopped at 1900 or not.

Q. I understood you to state that the prices stated here by you covered from the years 1880 to 1899?

A. If I did say so I intended to say if included up to 1900.

Q. Well why did you stop at 1900?

A. I don't know of any work having been done after 1900.

Q. Didn't you know the prices after 1900?

A. Not after the spring of 1900. I think my last work I figured on was early in 1901 before an increase of prices.

Q. Well your statements cover the whole of the year 1900 don't they?

A. Yes sir.

Q. Didn't you know the prices the next spring, that is the spring of 1901?

A. Of course I did, but no work, so far as I know was done after the increase of prices in 1901.

Q. No work done by whom?

A. On the buildings I was pricing for the Knoxville Water Company.

Q. You saw that the Knoxville Water Company had been required to file some statements referring to the years 1901 and 1902 didn't you?

A. I don't know whether I did or not.

1924 Q. Didn't you see statements of work done there in 1901 and 1902 by the Knoxville Water Company?

A. That may be so, but it escaped my attention, if I did. I went by Mr. Wheeler's schedule. I don't know that I saw any work done after the early part of the spring of 1901.

Redirect examination by Mr. PICKLE:

Q. Mr. Getaz, state whether or not the estimates of Mr. William Wheeler submitted to you for examination and estimate were those running from the year 1882 or 1883 to March 1901?

A. My recollection is that is so.

Q. You had no schedules of his estimates before you of any subsequent years?

A. No sir.

Q. And therefore didn't undertake to deal with them?

A. The last schedule of Mr. Wheeler of estimated work is on page "502" of Volume "2;" that is the last that I examined.

Recross-examination by Mr. CALDWELL:

Q. Now please look at page "498" of William Wheeler's deposition and see if you don't find there "additions for 1901"?

A. Yes sir ending March 31st. That work was done before April 1st, and before the increase of wages came.

Q. Now look at the bottom of page "502" and see if you don't see reference to matters that were done in 1902?

A. On page "502" is a statement of Mr. Wheeler—not his schedule.

Q. Please look on page "500" and see if you don't find reference to things that were done in 1902?

A. This was in regard to piping; I didn't price those.

Q. You did price the excavation cost didn't you?

A. I did, but for other years.

Q. Now why was it that you stopped exactly at page "502"?

A. This last item on page "501," I stopped there.

1925 Q. Why did you stop there is the question?

A. Mr. Pickle there had a piece of paper in there and told us we needn't go any further than that—that the schedule ended there; there was nothing further in the schedule that I could see.

Q. So you were instructed not to go beyond page "502"?

A. I wasn't instructed. He told me the schedule didn't go any further.

Q. You went over some work done in 1901 and 1902 didn't you?

A. Not in my estimation.

Q. Well how is the fact?

A. The last one we had ended March the 31st, 1901.

Q. Now I will ask you to look at page "498," under the head of "additions" March 31st, 1902, grading, planting and drainage of easterly side of lot, in Strong and Epps Addition, estimated at $500.00, and say whether or not that is not the kind of work you have been giving your estimates on heretofore?

A. I did not change this price; I did not estimate it. You will not find it in my schedule.

Q. Is there a single price applicable to that kind of thing set out in your statement that is applicable to what I have just read you?

A. My estimate ended March 31st, 1901.

Q. Then your estimate don't apply to this item I have just read to you?

A. No sir.

Q. But your estimate is much lower than the prices just read to you at the time that work was done?

A. I didn't notice the prices stated there.

Q. Prices for grading and draining had gone up in 1902, hadn't they?

A. I think everything went up.

Q. Now do your prices apply to the Portland cement concrete walls and buttresses, lumber for frames and forms and bricks laid in Portland cement in the year 1902?

A. No sir.

Q. Or after March 31st, 1901?

A. It does not.

1926 Q. Now see if on page "501" you don't find items of the kind I have just called your attention to?

A. Yes sir I estimated that.

Q. And you estimated them at the prices that prevailed before 1899, didn't you?

A. I estimated it at the same price in 1900.

Q. Well that was wrong wasn't it?

A. Only partially.

Q. Isn't it a fact that in making that estimate which you recite in your statement as taken from pages "501" and "502" of William Wheeler's deposition, that you were still using prices that prevailed between the years 1880 and 1899?

A. It was the same as it was in the year 1900; the estimation for it was the same as in the year 1900.

Q. Then you have applied prices for the year 1900 before the rise to labor and material in the year 1902 after the rise?

A. I did, because I overlooked the date.

Redirect examination by Mr. PICKLE:

Q. Mr. Getaz, was it your purpose and instruction to examine and report upon the construction of the Knoxville Water Company up to the 31st of March 1901?

A. I understood it was my instructions.

Q. Then how did you happen to embrace this item in the year 1902?

A. It was an oversight in the date.

Q. I will ask you whether or not the date appears on the same page or some several pages preceding the item?

A. On the pages preceding.

Q. And you overlooked the paging as to that item?

A. Yes sir.

—— ——.

1927 S. J. MUNDING, next witness called on behalf of the defendant, having been duly sworn, testified as follows:—

Examination by Mr. PICKLE:

Q. Give your age, residence and occupation?

A. Fifty-one years old, Knoxville, Tenn., occupation contractor.

Q. How long have you been engaged in the contractors business in the city of Knoxville?

A. About twenty-eight years.

Q. Have you been actively engaged in that business during that period?

A. Yes, sir.

Q. State some of the buildings that you have erected during that time, Mr. Munding?

A. Well, I have erected the first Agricultural house on University Hill, and the Schubert Hotel, the old one that stood there, and the Mechanicsville School House over in the 9th Ward, and two additions here to the Hattie House, the first one and the old one behind it, and the Railroad Office there that sets on the left hand side of Gay Street as you go out, and numerous store houses and private dwellings. About 12 years ago I erected the residence of Dr. McCreary on 4th Avenue.

Q. Are the buildings you have specifically named, some of the larger buildings of Knoxville?

A. Yes, sir, they are about as large as any here. Last year I superintended the work on the new Passenger Station down here for architect Milburn.

Q. Are you familiar with the prices of material and labor, &c., entering into the construction of works within the scope of the business of a general contractor in Knoxville during the period that you have been a general contractor?

A. Yes, sir.

1928 Q. Did you in company with Mr. David Getaz make an examination of the portions of the Knoxville Water Company's plant that falls within the scope of a general contractors work, and make valuations of such work?

A. Yes, sir.

Q. I will ask you to examine the report which has been filed and made a part of the deposition of David Getaz already taken in this case, and state whether that report correctly embodies the results of yourself and his examination?

A. This is the paper we made out together.

Q. Well, does it correctly embody the results of your investigations and valuations?

A. Yes, sir, we went over these carefully together.

Q. Are the statements of that report correct? in every respect?

A. Yes, sir, so far as we went, they are correct, in every respect. We went over it two or three times and corrected what mistakes were in it, and it stands right the way it is now.

Q. Mr. Munding, what is the usual per cent. that is allowed or allowable to architects for making plans and specifications and

supervising work in the city of Knoxville for the time that you have been engaged as a contractor?

A. Well, where they furnish the plans and oversee it, it is five per cent., and where they furnish plans and don't oversee it, it is two and one-half per cent.

Q. Have you known the rates ever to be higher than these stated in Knoxville?

A. No sir, I have never known them to be higher.

Q. Have you ever known them to be lower?

A. No, sir. Sometimes they sell a plan but I don't know what they get for it; they will sell a small plan for $10.00 $15.00 or $25.00, but they will oversee that same plan for two and one-half per cent.; they will make the plan and let you have it and then after you get done with it, you have to return it to them.

1929 Cross-examination by Mr. CALDWELL:

Q. Mr. Munding, how long have you been a contractor?

A. About 29 years.

Q. Did you ever build any water works?

A. No, sir.

Q. Did you ever build any parts of water works?

A. No, sir.

Q. Did you ever lay any pipes in the streets for water works?

A. No, sir, I never did.

Q. Did you ever do any excavations.

A. Yes, sir, I have done excavations.

Q. For laying pipes for water works in streets?

A. No, sir.

Q. Did you ever lay any pipes in streets for water works?

A. No, sir.

Q. You have estimated the cost of that kind of work in your deposition, haven't you?

A. Yes, sir, I have estimated that from other dirt I have moved.

Q. Who made this estimate you have here, you or Mr. Getaz?

A. We both made it together.

Q. Mr. Getaz says that he has had no experience in that character of work, have you?

A. Not in water works I haven't.

Q. Are you any better qualified to make an estimate on that kind of work than Mr. Getaz?

A. No, sir, I don't know that I am.

Q. When did you become a contractor on your own account?

A. I cannot give you the exact year, but it has been about 28 years ago.

Q. Were you by yourself or did you have a partner?

A. McLemore, Kelley and Company were the firm.

1930 Q. Who did the estimating for work, and made specifications for that firm; who did the work on the specifications?

A. We all four did it together.

Q. Who was the principal man in doing it?

A. Green McLemore, he was the senior member.

Q. Who had actual charge of the work of construction?
A. I was.
Q. You were the foreman of the work?
A. Yes, sir, or rather we were all foremen together; if we had two or three jobs, each man went out on a different job.
Q. How long were you together?
A. Maybe some 5 or 6 years.
Q. How did the firm end?
A. We ended all right.
Q. Then what did you do next?
A. I went in with Jim Galyon and stayed with him a couple of years and that ended all right too.
Q. And you have since been doing all right by yourself?
A. Yes, sir.
Q. Are you in a partnership now?
A. No, sir, I am by myself now.
Q. Did you bid on the improvements to the Imperial Hotel some 10 years ago?
A. No, sir, I didn't bid on that.
Q. Galyon and Seldon got the contract, didn't they?
A. Yes, sir.
Q. They were $10,000.00 lower than the next bidder, weren't they?
A. I really don't know. I know they got the contract.
Q. Did you bid on the Court House here?
A. No, sir.
Q. Do you know what other contractors bid on it?
A. No, sir, I do not, but I don't think there was but the one firm here in Knoxville.
1931 Q. What firm outside of Knoxville bid on it?
A. I don't know.
Q. How much lower was Mr. Getaz than the next bidder above him?
A. I couldn't tell you that.
Q. What big houses do you say you have built here?
A. Well, when I was in partnership with McLemore and Kelley we built all the Hattie House as it stood before the improvements went on it.
Q. What was your price on it?
A. I don't recollect.
Q. What was the next price above you?
A. I can't tell you that.
Q. Was there much difference between the two bids?
A. I don't suppose there was.
Q. Well, don't you know how that is?
A. No, I don't know.
Q. Where was the next house you built?
A. Dr. McCreary's house over on 4th Avenue.
Q. And how long ago has that been?
A. Some 10 or 12 years ago.
Q. What have you been doing since that time?

A. I have been doing contract work but not taking large contracts.

Q. What did you take the McCreary job for.

A. $6,325.00.

Q. How much was the next bid above you?

A. I think it was $7,000.00.

Q. And what was the next above that?

A. I don't know.

Q. There were several above that weren't there?

A. I couldn't tell you that.

Q. That was a difference in price of something over ten per cent; that is not an extraordinary difference in bidding, is it?

1932 A. No.

Q. How big a difference in percentages between bids have you ever known?

A. I have known them to drop down one-half.

Q. Fifty per cent.?

A. Yes sir.

Q. Different men bidding on the same plans and specifications?

A. Yes sir.

Q. Mr. Munding, what kind of a hole in the ground was it that was made in the engine house and pit at the Pump Station for which you have allowed 20 cents per cubic yard for excavation. What was the size and shape of the hole in the ground that was made?

A. It was a kind of a semi-circle at each end.

Q. Now how about the depth below the surface of the ground?

A. Well now I don't know that we measured the depth of that hole.

Q. Isn't it a fact that you did not measure the depth below the ground at any point?

A. No we didn't measure the depth.

Q. How did you have the earth removed from the pit in your valuation?

A. We took it both ways; one way if it was thrown out it would be so much, and if it had to be hoisted up, it was worth so much.

Q. How much if you threw it off on the side?

A. It is in this paper here; I really don't know how much we have got it in here.

Q. What did you say about throwing it out and hoisting it up?

A. Well one way you would have to draw it out with a rope and a box, and the other way you could shovel it out.

Q. Do you say anything in your paper about taking it out that way?

A. Yes sir.

Q. Well read us what you say about that?

A. "Earth excavation and regrading. We cannot ascer-

1933 tain if this quantity is correct. The price of 30 cents charged is excessive. Twenty cents is a good price for said work. We have 560 cubic yards at 20 cents equals $112.00."

Q. Well you charge the same price there whether it is hoisted out or thrown out?

A. No sir it is worth a little more if hoisted out.

Q. I mean the paper charges the same price?

A. Well this paper does, but I think we made a difference in that.

Q. Then the paper does not represent the true result of your calculations on that point, does it?

A. Not according to that, it don't.

Q. How much ought to be added if it was hoisted out?

A. I think we added about five cents more.

Q. Then there should be five cents a yard added to your price here if it was hoisted out?

A. Yes sir.

Q. Now Mr. Munding, would that be an ordinary case of throwing dirth out, if you remove the dirt from the north side of that pit to the south side and then threw it out; wouldn't it have to be handled two or three times in order to get it out on the south side?

A. Not the way that ground lays. It falls off next to the river. If you throw it off on the north side you would have to handle it twice.

Q. How would you get if from the north to the south side?

A. You would throw it out.

Q. You would have to have another hand there to help?

A. You could load it in a wheel barrow and wheel it out.

Q. Could that be done for 20 cents per cubic yard?

A. Yes sir.

Q. Now suppose there was a wall 12 feet high on the south side you couldn't run your barrow over there could you?

1934 A. No sir you would have to draw that out.

Q. That pit is about 30 feet in diameter, isn't it? in length from the river north?

A. We didn't measure that; I suppose it would be though.

Q. Suppose it had been 10 feet in diameter, you could have gotten the dirt out of it easier than when it was 30 feet couldn't you?

A. Oh yes sir.

Q. And with less expense, couldn't you?

A. Well you wouldn't have had so far to move it, would have been all.

Q. Well would you have charged 20 cents a cubic yard if it had been 10 feet instead of 30 feet in diameter?

A. Yes sir it would be about the same thing.

Q. Why do you charge that price for moving it 30 feet?

A. Because it would be very little further to move it.

Q. You gentlemen didn't examine to see whether it could be wheeled out, did you?

A. No sir we didn't examine for it was already built up there.

Q. Which way did you conclude it had been gotten out, wheeled out hoisted out or how?

A. Either way; we didn't decide on which way they got it out. We gave them the preference there of either way.

Q. Well if you gave us the preference you ought to have added on that five cents for hoisting out, oughtn't you?
A. I think that is in this paper somewhere, Mr. Caldwell.
Q. It is not in the paper however, is it?
A. I don't know. I think we made a note of it. It ought to be.
Q. Well you think in item *"2,"* rock excavation, where we charge $1.87 per cubic yard that we should be cut down to $1.00 a cubic yard, do you?
A. Yes sir.
Q. Did you allow us anything there for hoisting out?
A. I think we did.
1935 Q. I wish you would find it for me if it is on that paper?
A. I know we talked it over that it would be worth a little more to take it out that way, but I don't know where it is if it is not in here.
Q. It is not in the $1.00, you allow us is it?
A. No.
Q. Can you find any allowance? for additional price of hoisting in that statement filed with your deposition?
A. Now I would not be positive. Me and him (Getaz) talked it over that we were to allow you a little more, but whether it was put down or not, I don't know.
Q. Well ought it to have been put down?
A. Yes sir it ought to have been.
Q. How much difference did you make for the hoisting?
A. I think 25 cents.
Q. Then there should be 25 cents a yard added onto that if we hoisted it out?
A. Yes sir.
Q. How many bricks in a cubic foot?
A. Twenty-one.
Q. Is that a fact?
A. That is what we count?
Q. How many are in it actually?
A. Well there are about 19 or 20.
Q. Seventeen isn't it?
A. Well 17; it is owing to how big a mortar joint you make as to that.
Q. Now in *item 3* of your deposition you find 90,000 brick laid in cement for which we charge $15.00 a thousand and you allow us $12.00 a thousand. How many bricks will one barrel of cement lay?
A. It ought to lay about one thousand.
Q. And what would that barrel of cement cost?
A. What cement would it be?
1936 Q. Louisville cement?
A. Well I think today it is worth about $1.75. I think it is; I am not sure.
Q. What was it worth in 1883 and 1884?
A. I couldn't tell you; the price was very low at that time; it wasn't worth —.

Q. Did you consider the price of cement in making this estimate?

A. Yes sir.

Q. Well what did you figure it out.

A. I don't recollect what we figured it out.

Q. How much sand would lay that same one thousand brick?

A. One yard.

Q. And what would that cost?

A. Seventy-five cents.

Q. How many of those brick in that Louisville cement would an average mason lay in a day?

A. He would lay from 1,000 to 1,200.

Q. Which shall you say? 1,000 or 1,200?

A. It is owing to the thickness of the wall.

Q. Assume a wall 12 inches thick?

A. Well he would lay 1,200 then.

Q. Wouldn't it be a very fine mason indeed that would lay 1,200 brick a day?

A. Well no, in a common ordinary wall it wouldn't. If you were to get on to fine press brick work, he couldn't lay that.

Q. How much would you pay him for laying 1,000 brick in that cement yourself?

A. About $2.50.

COMMISSIONER: Do you mean an actual thousand brick or your estimate of a thousand brick?

A. I mean a measured thousand.

Q. Suppose it is an actual thousand, how many would that same man lay?

A. Well he wouldn't lay more than 1,000.

1937 Q. Could he lay that?

A. Yes sir he ought to lay that in that class of work.

Q. Would you allow him a helper?

A. Yes sir he has a tender.

Q. What would you pay the helper?

A. Well they were getting about 80 or 90 cents a day at that time.

Q. Could one helper keep up with one mason?

A. Well he had a helper and then a man to make the mortar?

Q. How much would you allow the man that made the mortar?

A. The same price?

Q. That would make $1.60 for the two men?

A. Yes sir.

Q. And what would you allow for staging?

A. Not anything.

Q. Why?

A. They furnish their own staging, a contractor does, and we never figure anything on staging.

Q. Don't the staging cost something?

A. It cost- something but it comes in with the general bid of so much a thousand.

Q. Did you and Mr. Getaz agree on that?

A. We didn't mention staging at all; it has always been taken for granted when taking brick work that they furnish their own staging.

Q. Then you didn't consider staging at all?

A. No sir.

Q. How about the mortar bed and hod?

A. Nothing at all; that is figured in the price we made.

Q. Did you and Mr. Getaz figure anything on staging, hods or mortar bed?

A. No sir we didn't allow anything for the hods or mortar beds.

1938 Q. Well now what were those brick worth?

A. About $5.50 or $6.00.

Q. Well which?

A. Say $5.50.

Q. Did you and Mr. Getaz agree on that?

A. Yes sir.

Q. You agreed to figure this at $5.50?

A. We dropped the price of brick and figured out what the brick were worth, what we could actually have gotten them laid for in the wall.

Q. Now when you and Mr. Getaz went there to make the estimates, did you measure the walls? in that pit—they were gone wer-n't they?

A. Yes sir they were gone, but we took your figures and went by them. We measured some of the plans that were there and some were not there, the work being gone.

Q. And you agreed to allow us $12.00 a thousand for the brick laid in the wall

A. Yes sir.

Q. Now in doing that did you go over these several items I have mentioned to you?

A. Yes sir.

Q. And fixed the prices on them?

A. Yes sir.

Q. The same prices you fixed here in your deposition?

A. Yes sir the same prices.

Q. Does that figure out $12.00?

A. Yes sir it figures out $12.00 with the alterations there.

Q. You say you measured these walls?

A. Part of them we did and part of them we did not.

Q. I wish you would state to the stenographer exactly what measurements you and Mr. Getaz made in that pit?

A. We didn't make any measurements actually in the pit.

Q. Then you didn't use a tape-line or rule of any kind?

A. No sir.

1939 Q. How did you get at this result then?

A. We had your figures here, the amount of brick you have here.

Q. And took those quantities?

A. Yes sir that is the only way we could get at it.

Q. You took our estimate of quantities——
A. Yes sir.
Q. —and estimated 21 bricks to the cubic foot?
A. Yes sir.
Q. Suppose we estimated at 17 bricks to the cubic foot, oughtn't your price to be enough higher to allow for that difference?
A. No sir I should think not because you have your sand and the lime to buy and that makes up the deficiency for those brick you lack between the 17 and 21.
Q. Didn't you have it to buy in your case the same as we would in our case?
A. Yes sir, but that makes up what you lack in the brick.
Q. How would it make it up?
A. Well they would be close together and they wouldn't measure out a cubic foot.
Q. When you measured your wall up 21 brick to the cubic foot, how many more bricks do you pay for in buying them than you pay for in laying?
A. There is about 1/5. A thousand brick measured will lay 1500; that is a counted thousand will lay 1500, and that measured wall where there is a thousand brick, where you measure it, there would not be that many brick in it—there will be a thousand brick in it.
Q. That is to say you pay for about 33 per cent. more than you actually put in there?
A. Yes sir when you get it that way.
Q. Now then if we figure 17 brick to the cubic foot and you figure 21 brick, ar-n't we entitled to 33 1/3 per cent. more in cost than you are?
1940 A. No for you have got to buy your material to put in there.
Q. But it is the same wall with the same actual brick and material in it?
A. But it won't measure a foot.
Q. But it has got the same amount of lime, mortar and sand in it?
A. Well when you have got the same sand and mortar you have got a foot, but the 17 brick packed up would not make a foot.
Q. Well take a piece of work that has got a thousand brick in it actually, you would measure it up 1500 bricks?
A. That is what it would measure.
Q. Well now wouldn't there be the same amount of sand, lime and mortar according to your measurement as according to our measurement?
A. If you make the wall measurement of it the same as the mortar joints, you have the same amount of brick in it.
Q. Well now let's take it this way Mr. Munding and see if we can't get at it: You take 1000 brick at $6.00; you take a barrel of cement to lay them at $1.75, add a yard of sand at $.75, pay a mason say $2.10, pay your helpers $1.33, then build all that brick up in a solid wall; according to our measurement that is 1000 brick laid and the price is the same as the several items that I have stated.

Now what is it, how many bricks are laid according to your estimate and what is the price you have?

A. You have got the same amount that I had. You have 1500 measured brick—your wall would measure as though you had 1500 brick.

Q. Then I have got to add 50 per cent., or a certain per cent. to each one of those figures I have given to you here, hav'nt I?

A. What for?

Q. Because it is 1500 brick to you and 1000 brick to me.

A. Well we get paid for them, and we charge so much a thousand for it.

Q. I understand, but you charge 1500 brick for this 1000
1941 brick, don't you?

A. Yes sir, if we didn't do that we would have to charge so much for the sand and lime to put them together, or the cement, or whatever you use.

Q. Isn't there the same amount of labor, the same amount of sand and the same amount of everything in my one thousand brick as in your 1500?

A. Yes sir.

Q. Then shouldn't I be allowed the proportionate increase?

A. No sir.

Q. Well now Mr. Munding build me a solid wall of a thousand brick, 17 brick to the cubic foot and add all these items in as you go on. 1,000 brick at $6.00 a thousand, and build them up in a solid wall for me with all these items of mortar and things in them?

A. I would have 1500 laid brick.

COMMISSIONER: But suppose you didn't have but 1,000 to do the work?

A. Well I would measure up 1500 brick when they were laid. I would call it 1500 brick.

Q. Well if I brought you 1000 brick in a wagon and not one brick more, I want you to build them up in a solid wall and give me every item of cost in it taking the brick at $6.00 per thousand. What would you have?

A. Well I have got $11.25.

Q. Well now give me the items?

A. $6.00 for brick.

Q. How many brick?

A. One thousand brick. And I have got 75 cents for sand, 40 cents for lime, I have got $2.50 to lay them and I have got $1.40 for the tender and helper.

Q. You left out your cement didn't you?

A. There was no cement in that.

Q. I meant to put the cement in the estimate. Well now
1942 you say you have got them laid in common lime at $11.25?

A. Yes sir.

Q. Well how much more would it be if laid in Louisville cement?

A. It would be $12.60.

Q. What did you put the cement at?

A. $1.75.

Q. Total $12.60?
A. Yes sir.
Q. Now according to our count that is 1000 brick and costs $12.60; what is it according to your count?
A. 1500 brick.
Q. And costs what?
A. It would cost that much money, $12.60.
Q. That is all it would cost?
A. Yes sir that would be 1500 brick the same you measured in that wall.
Q. Well wouldn't you have to add something for bricks?
A. No sir.
Q. The prices are exactly the same?
A. Yes sir.
Q. And it makes no difference in results whether you measure 21 bricks to the cubic foot or 17 bricks to the cubic foot?
A. No sir.
Q. It brings it out the same way mathematically at the end?
A. Yes sir.
Q. In regard to cement floor *item 5* in your deposition, did you measure the cement down in the bottom of the pit only?
A. Out there at the house?
Q. The engine pit; or did you measure also the cement floor around the pit at the upper surface?
A. We measured it all.
Q. You and Mr. Getaz agreed about that did you?
A. Yes sir.

1943

Q. And you found that there were 70 square yards including what was in the bottom of the pit and what was laid around the top of the pit?

A. Yes sir.
Q. The Water Company claims in Mr. Wheeler's estimate 735 square feet at 16 2/3 cents, and you find 630 square feet. Now you say that 630 square feet, as I understand you, includes the floor at the bottom of the pit and also all the cement flooring around the mouth or top of the pit?
A. Yes sir.
Q. Now can you give me the details of your measurements by which you arrive at that result?
A. We went down in the pit and measured it with a line.
Q. How much did it measure?
A. Just what we have here.
Q. How long was the pit?
A. I couldn't tell you.
Q. How broad was the pit?
A. I couldn't tell you that.
Q. Then how are we going to test the accuracy of your measurements?
A. We figured it up carefully and set it down; I don't know where the paper is.
Q. How did you figure around the top of the pit?
A. We measured around it and allowed so much.

Q. Isn't it a fact that the difference between 735 square feet as claimed by Mr. Wheeler and 630 square feet as allowed by you is because you measured only the bottom and not the top of the pit?
A. No sir we measured the bottom and top too.
Q. What is it at the top?
A. A cement floor at the top of it.
Q. How much?
A. I couldn't tell you.
Q. Isn't there just about the difference between 630 and 735 square feet?
1944 A. Now I don't recollect Mr. Caldwell whether we put that with that bottom or not; I couldn't say.
Q. After refreshing your recollection and considering the matter, isn't it a fact that you measured only the bottom of the pit?
A. I know we measured the bottom of the pit, but I wouldn't say positively about the top.

Mr. CALDWELL: It is submitted that *item No. 6* spiral stairway is conceded to be an error.

Q. And Mr. Munding that estimate you made a moment ago 1000 brick at $11.25 a thousand, was for brick laid above ground, wasn't it?
A. No sir they were laid anywheres. I didn't make any special place for them.
Q. They were laid in line either above or below ground?
A. Either one.
Q. Well now in this *item 7* of your deposition you have allowed 75,000 brick in lime mortar above the ground line laid at $8.00 a thousand. Now what is there to distinguish those brick from bricks you have laid in line at $11.25 a thousand?
A. Well the difference would be if I were to lay them brick, I would get 500 brick extra in the measurement. I didn't figure them above ground or under the ground, but figured what a thousand brick would cost.
Q. Well we have counted 75,000 actual brick in there; how many would you count in there under this item?
A. I would take 1/5 off if I were going to build you a house with 75,000 brick in it, before I ordered the brick I would take 1/5 of the brick off.
Q. I am not asking about that. I say we counted 75,000 actual brick in this item; how many brick have you counted it at?
A. I don't understand you clearly?
Q. We have counted the brick under this item as being actually 75,000 brick; now how many do you count them at?
1945 A. We counted them at $8.00.
Q. Well but how many bricks?
A. 75,000 bricks I think it is. There was a lot of that work we couldn't measure and we took your quantities for it.
Q. And applied your measurement and price?
A. Yes sir.
Q. If you have got 75,000 actual brick in there counted one by one, you have got 112,000?

A. Yes sir, but we didn't count them that way. We just took what you have got there. We count 112,000. We took your counts out of this book.

Q. That is to say for every thousand of our brick you have allowed us 700?

A. No sir we just took your quantities. There was lots of them quantities we couldn't get.

Q. What have you got as our quantity; you fix it at 73,000 brick, now reduce that *the* cubic feet?

A. We just took your figures there. You have got 73,000 brick laid in lime mortar at $13.00.

Q. Now take those 73,000 brick you allowed us there and reduce them to cubic feet; how many cubic feet do you make it?

A. That would add on a fifth there.

Q. I don't care what it adds on, I want to know the number of cubic feet?

A. Well it would take me some little time to figure that out for you.

Q. Will you do that for me?

A. I will when I go home.

Q. Can't you do it now?

A. No I can't do it now.

Q. Can you do it?

A. Yes I can do it.

Q. But you are not willing to undertake it now?

A. No sir I will not undertake it now.

1946 Q. Will you do it without assistance?

A. I think I will.

Continuation of cross-examination by Mr. CATES:

Q. Mr. Munding your charge of $8.00 per thosuand is for measured brick isn't it?

A. Yes sir.

Q. And for a thousand brick actually laid it is $11.25, isn't it?

A. Yes sir it is $11.25.

Q. Now you count a thousand brick actually laid at 1500 measured brick?

A. Yes sir that is what they will measure.

Q. That is you add on 500 measured brick for every thousand actual brick?

A. Yes sir.

Q. Then if we have laid 75,000 actual brick, we are entitled to $11.25 on the thousand for that, are we not?

A. Yes sir if you have actually laid that many brick you are entitled to that.

Q. And you would count 75,000 actual brick laid as 112,000 measured brick?

A. Yes sir, whenever that 1/5 would be added onto them.

Q. So that if we have 75,000 actual brick laid there—not measured brick, but actual brick—we are entitled on your estimate to $11.25 a thousand for?

A. Yes sir if you have actual counted brick.

Q. And I understood you to say you never measured up that brick work?

A. No there were some we couldn't measure.

Q. This particular item I am talking about, you didn't measure all of that?

A. No sir we didn't down at the station, we couldn't measure any of it.

The further taking of this deposition was adjourned until Saturday morning July 25th, 1903.

1947 SATURDAY MORNING, *July 25th*, 1903—9:30 a. m.

The further cross examination of the witness MUNDING was resumed.

Cross-examination by Mr. CALDWELL:

The WITNESS: I desire to state in answer to a question asked me on cross examination yesterday as to how many cubic feet there would be in 75,000 brick, my answer is 3,571 cubic feet.

Q. This result is reached by considering 21 bricks to the foot, is it?

A. Yes sir that is the way we measured it.

Q. I mean that calculation?

A. Yes sir 21 brick- to the foot.

Q. Tyenty-one brick to the cubic foot in 73,000 brick?

A. 75,000 I have got.

Q. Well the question was 73,000?

A. Do you want it at 73,000 brick?

Q. Yes sir.

A. 3,476.4 4/21 cubic feet.

Q. Referring to the item of 73,000 brick above ground line, how do you know there are only 73,000 brick there?

A. Well that is the measurement from the plans; we measured the plans on that.

Q. You didn't measure the walls?

A. No sir we went by the plans. I went and looked at the walls to see if they verified the plans.

Q. What kind of plans did you have, complete plans?

A. Well we had partially complete plans; there were some additions made to the buildings.

Q. Did you make an allowance for the additions?

A. Yes sir.

Q. What allowance did you make?

A. Just what we seen.

Q. You don't know whether then there are actually more than 73,000 brick there or not?

1948 A. No sir that is what we measured them for.

Q. You heard Mr. Getaz's statement about the old engine pit here awhile ago. Had you and he ever measured that old engine pit before?

A. No sir we never measured it before—we went over this morning and measured it.

Q. In *item 8* you reduce our charge for marble window sills from $4.00 each to $3.00 each. What reason had you for doing that?

A. Well we never had paid anything over that before. We had paid from $2.50 to $3.00 for window sills.

Q. What is the length of these sills?

A. I don't know; they are narrow sills.

Q. Don't the length of a sill govern its price?

A. Well the length does, but these are ordinary common sills.

Q. What is the ordinary length of a window sill?

A. Three feet eight inches.

Q. Those windows are larger in proportion than ordinary windows?

A. They are narrower and a little longer, but that wouldn't make them cost any more.

Q. How long are they?

A. I think they might possibly be 4 feet and 2 inches long.

Q. You say they might be how long?

A. Four feet and two inches.

Q. That is longer than the average window sill isn't it?

A. Yes sir, but not much; you see the average window sill is 3 feet 8 inches.

Q. Ar-n't those window sills all specially made and ar-n't some of them on a curve?

A. Well I didn't notice any in particular. There might have been some in the front end. If they were on a curve, in that kind of a window sill it would throw them all in about the same price.

Q. *Item 9.* Ten large 12 by 18 lights and 2 circular windows, 33 inches and frames at $10.00, you reduce us to $9.50 each.

1949 Are all those windows there now?

A. Yes sir they are all there, and they are just as though they had come from the shop. They have got no inside finish on them. I mean by that they have no jam casing, like that (referring to window casings in Court Room) on them—no casing on them.

Q. Don't you know that one-half of the windows that are covered by this item are gone entirely?

A. No, I have only got the number of windows he has in his notes.

Q. That don't answer my question; don't you know that one-half of the windows that are covered by this item are gone?

A. No, I don't know.

Q. Then if one-half of them are gone, you are not calculating on some items that Mr. Wheeler calculated on?

A. No sir I am just calculating on the items I seen.

Q. *Item 11.* You cut our price for boarding from $22.00 to $20.00. All that boarding is gone isn't it?

A. Yes sir.

Q. Now is there not boarding on the market which might have cost $22.00 and even more than that?

A. No not at that time, and usually we have been buying that boarding at $16.00 that was just ordinary boarding.

Q. How do you know you have been buying that kind of boarding when it was all gone?

A. Well when we built that class of building, that is the kind we used. We couldn't determine the quality of the boarding, but judged it from the class of the building.

Q. Well you don't know what the class of boarding was then?

A. No sir, but the general class of such building is done with that kind of boarding.

Q. Well a man buying that kind of boarding might select a $22.00 quality?

A. If he wanted it in there.

1950 Q. I am asking you if they couldn't have selected a $22.00 quality?

A. We never paid $22.00 for it.

Q. You did not?

A. I never did.

Q. Did the water company?

A. They might have paid $30.00 for it.

Q. I say did they pay $22.00 for it?

A. I don't know.

Q. So you don't know what they paid for it?

A. No sir.

Q. Mr. Munding you and Mr. Getaz went over there for the purpose of decreasing these prices, didn't you?

A. No sir not that I know of.

Q. *Item 12.* Railing around pit which you reduced from $75.00 to $64.50. Why did you make that reduction?

A. Well there are two sizes of pipe around there and they are probably inch pipe inside and measure 1¼ inches outside, and that pipe wouldn't cost that much money.

Q. What would it cost?

A. About 50 cents is what we figured it at.

Q. So you measured the railing that is there now?

A. Yes sir.

Q. Did you look to Mr. Wheeler's deposition and find that the railing he is talking about is all gone?

A. No sir I don't think we did; we measured the present railing.

Q. If it is a fact that the railing upon which you are giving a price in this item is all gone, then your price is not applicable?

A. Not if the railing is gone, it couldn't be.

Q. You are estimating the railing that is there now?

A. The present railing, yes sir.

Q. *Item 13.* Hardware, Nails, &c. for building, we charge

1951 $100.00 and you cut it down to $50.00. Why did you cut us down one-half on that item?

A. I don't see how you could possibly put that much hardware in a house of that kind.

Q. Is the roof gone?

A. It is gone so far as I know.

Q. The truss is gone?
A. Yes sir.
Q. You never saw either one of them?
A. I never saw either one of them.
Q. But you concluded from the size of the building that they couldn't get that much hardware in it?
A. Yes sir.
Q. You had no plans of it?
A. No we had no plans of it.
Q. And no specifications?
A. No sir, only the amount of the lumber here.
Q. What items of hardware would enter into that kind of construction?
A. There would be nails and door sheaves to hang doors overhead and probably some scrap hinges.
Q. That is all you allowed for?
A. Yes sir.
Q. You didn't allow any iron for the trusses?
A. No sir.
Q. Why?
A. There were no trusses named here.
Q. But suppose there were trusses, wouldn't that require iron?
A. Yes sir it would require rods.
Q. Could a roof of that span be built without trusses?
A. Have you got the size of that house there?
Q. I don't know sir.
A. That could be built without trusses on it. You could put columns in the center to carry the roof.
1952 Q. That is to say you could build columns in the engine pit?
A. No sir you could build them on the sides and not in the pit.
Q. The engine pit occupies the entire floor space except a walk room about it?
A. Yes sir.
Q. How wide is that walk-way?
A. Three or four feet.
Q. You could build pillars in that walk-way?
A. No sir not pillars but posts.
Q. Would you build it that way?
A. No sir I wouldn't do it.
Q. Why did you say so then?
A. Because you asked if it could be done any other way?
Q. Could it be done any other way?
A. Yes sir with wooden posts.
Q. How big would you make it?
A. About 8 by 8.
Q. Have you allowed anything for the wooden pillars?
A. No sir.
Q. And if you hav-n't a pillar you have to have a truss?
A. Yes sir.
Q. Have you allowed anything for the truss?

A. No sir.
Q. So you have left us out in that?
A. Yes sir.
Q. Something ought to be added on that account, oughtn't it?
A. Unless you are positive that the truss was in there, you wouldn't.
Q. If you didn't allow us the truss wouldn't you allow us the pillars?
A. Yes sir.
Q. Then something ought to be allowed for one or the other?
A. There was neither one of them specified.
1953 Q. Did you know the size of the roof in making your estimate?
A. Only from the notes we had in this book?
Q. Did you actually know their dimensions?
A. Only what we had in this book.
Q. Did you have in your notes that that was 45 by 35 feet?
A. Yes sir I suppose we did.
Q. And yet you made this estimate without allowing us anything to support that roof at all?
A. Yes sir.
Q. Why did you do that?
A. Because there was no particular item for roof specified.
Q. Didn't you know as a contractor that you couldn't build a roof without some sort of support?
A. We took it as we found it.
Q. Well if you took it as you found it, you knew that the roof couldn't stand there as you found it?
A. No sir we didn't take that into consideration.
Q. Didn't you take into consideration the fact that the roof had to be supported properly?
A. We only took the amount of lumber you had there, and there was nothing said about the roof.
Q. Didn't you know that something had to be done about the roof?
A. There was no specific specifications about the roof and we didn't do anything with the roof.
Q. Now you say you didn't make any allowance for the roof, but you took the statements made in Mr. Wheeler's deposition. Will you be good enough to look at page 24 of Mr. Wheeler's deposition and see if you don't find these items in it: Take item "B" and count down eight lines from item "B" and see if you don't find roofing, including monitor top, framing, &c. and look on further down and see if you don't find hardware, nails, &c?
A. That comes in another item don't it?
Q. It is under the head of that same item "B". Now ain't
1954 it a fact that you made your estimate without allowing us any roof on the house at all?
A. As I told you we only took up the items of boards and hardware. We may find it lower down in our notes.
Q. Well find it for me if it is there? Is it there anywhere?

A. In the notes here?
Q. Yes sir.
A. Unless it is on page "25", boiler house, frame sides and roof.
Q. Page "25" of what, of your statement?
A. It refers to page "25" of Mr. Wheeler's deposition.
Q. You say you have now found on page "25" of William Wheeler's deposition where you allowed us for iron in that roof and truss?
A. No there is none on the notes here on this page; there may be some there, but we had only the notes.
Q. Then the fact is your estimate cutting us down from $100.00 to $50.00 on hardware and nails is an estimate on the house without any roof or truss, isn't it?
A. This item up here on page "22" we have boarding, then below there we have hardware and nails, and then we come on down to fram- siding and roof, the roof would be included in that.
Q. That is in the boiler house and not in the engine house you are talking about now?
A. It seems that the engine house had no roof according to the way you are trying to get at this thing.
Q. Don't you know when you cut us down from $100.00 to $50.00 on this item that we are now considering that you did not take into consideration the truss or roof at all?
A. Well if we cut you down to that, that $50.00 would buy the necessary rods in that house—the hardware and nails.
Q. Well did you consider the roof at all?
A. No sir we only took that item on boarding.
Q. Now you say without considering the roof you cut us
1955 down to $50.00, and if you had considered the roof you would have cut us down to $50.00?
A. No, but at the same time $50.00 would have paid it.
Q. What did you make that estimate on?
A. On the boards and the size of that house.
Q. Do you undertake to say now that you considered any trusses or roof on it?
A. We have got $50.00 in there for hardware and nails.
Q. I will repeat the question; do you undertake to say now in making this estimate that you considered any trusses for the roof?
A. Yes sir we gave you $50.00 for it.
Q. Did you know there was any roof or trusses there?
A. There must have been a roof on it.
Q. Did you know there was any truss there?
A. No sir.
Q. Then how did you consider the hardware and allow it in this estimate without knowing there was any truss there?
A. We gave you a liberal estimate on it.
Q. Did you give us a liberal estimate on the hardware?
A. Yes sir we gave you a liberal estimate on the hardware.
Q. How much did you allow us for the truss work?
A. We just took it that the carpenter work on that house—there is no charge there for that carpenter work in that item.

Q. Assuming that was built with a truss to support the roof, what would be the size of the truss?
A. I really couldn't tell you.
Q. How long would the iron rods be that would have to go through a truss of that kind?
A. I couldn't tell you that either.
Q. *Item* 14. In this same connection you say that the price charged for carpenter work is excessive. We charge $224.00 and you say $132.00. Now I want you to give me the items of carpenter work that you allowed us for?
1956 A. We just taken so many feet of lumber and set a price on it and that is the way we got that result.
Q. What price did you set on lumber and what price on labor?
A. Well I think we set the price at $12.00 on that amount of lumber; we didn't specify any particular part of the work.
Q. You mean I assume that you set $12.00 a thousand on lumber?
A. Yes sir to get it in place.
Q. How many thousand feet did that make?
A. Well it is near about in that neighborhood. I have got $134.00.
Q. How did you get the $134.00?
A. By multiplying that amount of lumber by 12.
Q. What amount of lumber?
A. 2,750 feet.
Q. And that makes $134.00?
A. Yes sir.
Q. *Item* 15. How did you get your price for lumber in the boiler house? in view of the fact that the boiler house is gone?
A. That was the regular market price for lumber about that time.
Q. What kind of lumber?
A. Just ordinary boarding.
Q. Do you know whether or not the water company used the ordinary boarding?
A. I don't know what they used.
Q. Would $16.00 be an excessive price for that kind of boarding?
A. They might have paid $16.00.
Q. I asked you if it would be an excessive price?
A. Yes sir for that kind of stuff.
Q. What kind of stuff?
A. That we would use in that kind of a building if we were going to figure on it.
Q. What kind of lumber did we use in the boiler room?
1957 A. I don't know.
Q. What kind ought we to have used, the same kind as in the boiler house?
A. You could have used any kind there you wanted.
Q. What kind would you have used?
A. If I had figured on it according to specifications——
Q. Well what kind of lumber would you have used?

A. Well you might have wanted pine or oak lumber.
Q. What did you figure on in the boiler house?
A. Just the ordinary lumber.
Q. You allowed us $20.00 there and $14.00 in the boiler house?
A. Well that in the engine house is dressed.
Q. And it was not dressed in the boiler room?
A. Not as far as we could judge.
Q. How could you judge, when it was all gone?
A. Just from that class of building.
Q. Don't you know that in the boiler room that it is not only customary but necessary where there is excessive heat to dress the lumber so that the heat will not catch the splinters on fire?
A. No sir.
Q. Do you mean to say that it is not a fact or that you don't know it?
A. It is not a fact.
Q. You are positive about that.
A. Yes sir.
Q. For what reason would you allow $20.00 for lumber in the engine house and only $14.00 in the boiler house?
A. That was dressed lumber.
Q. Why did you allow it?
A. That was down there and showed for itself.
Q. Where was it—show it to me?
(No answer.)
Q. Ain't that old house gone from there?
1958 A. I don't know; that old brick house isn't standing there.
Q. So you don't know whether this is the house or not?
A. No sir I do not.
Q. Isn't that boarding on the boiler house at present dressed lumber?
A. I couldn't tell you.
Q. I thought you said you figured on it?
A. It is brick there now, isn't it?
Q. How about the roof?
A. The roof is slate I think.
Q. Inside?
A. Oh it may be dressed or it may be rough.
Q. Isn't that the lumber you are talking about?
A. No sir we were — about the lumber in the boiler house, that has been torn down.
Q. What kind of lumber is in the engine house now?
A. In the present house?
Q. Yes sir?
A. The sheeting is tongued and grooved I suppose, and I imagine it would be an inch and a quarter thick.
Q. You suppose it is tongued and grooved and imagine it to be an inch and a quarter thick?
A. Yes sir.
Q. Did you make your estimate on that supposition and that imagination?

A. Yes sir.
Q. Now when you made your estimate upon that basis, you allowed $20.00 for it?
A. Yes sir.
Q. And when you came to the boiler house you allowed $14.00?
A. Yes sir.
Q. Why did you make that difference?

Mr. PICKLE: Well he has stated that about twice.
Mr. CALDWELL: If he did I failed to catch it.

1959 A. I said part of it was dressed and part of it was not.
Q. Now where did you see any that wasn't dressed?
A. I didn't see any at the present time.
Q. Then how do you know it wasn't dressed?
A. I am only supposing it wasn't dressed. You are speaking of the old roof; I didn't see any there.
Q. Then as I understand you, you concluded that the old roof was of undressed lumber because the new roof is of dressed lumber?
A. No sir, we supposed that that was rough board siding and that the roof would be rough sheeting also.
Q. Then you know that the sides of the old boiler house were rough boards do you.
A. No sir I do not.
Q. I thought you said in your last answer you assumed that the roof was rough because the sides were rough?
A. Yes sir I supposed they were rough in that class of building.
Q. *Item 16.* Carpenter work, you cut us down from $175.00 to $111.00. Ar-n't you talking about the present structure that is standing there now?
A. No sir I am talking about 5,500 feet of lumber; that is the item that comes above this carpenter work, and this carpenter work was done on that amount of lumber.
Q. In what building?
A. I don't know what building it was in.
Q. So you don't know what house you are figuring on?
A. No sir not in that item there.
Q. When was the house you are figuring on supposed to have been built?
A. I don't know that.
Q. Do you know the lumber if you don't know the house?
A. No sir.
Q. Do you know the prices then if you don't know the time?
A. Yes sir, it run that about that time.
1960 Q. How long ago?
A. I suppose 8 or 10 years ago. I suppose $14.00 would have bought that stuff then.
Q. But you don't know when the house was built or what house it was?
A. Not for that lumber, no sir.
Q. Or you don't know the amount of lumber?
A. No sir.

Q. *Item 17.* Brick paved floor 7,500 brick at $13.00. Are those brick there now?

A. I don't know.

Q. How were they laid?

A. I couldn't tell you that.

Q. Were they laid in lime or cement?

A. We laid them in sand.

Q. How do you know they were laid in sand?

A. It says they were just laid; it don't say whether in sand or cement; I suppose they were laid in cement.

Q. Were they laid flat or on edge?

A. I couldn't tell you.

Q. Wouldn't that make a difference if they were laid on edge?

A. Yes sir.

Q. And if they were laid in cement wouldn't that make a difference.

A. Yes sir.

Q. Look at the last item on page "25" of William Wheeler's deposition next to the last line on page "25"; don't it say they were laid on edge?

A. Yes sir.

Q. Did you know that that statement, laid on edge, was in William Wheeler's deposition?

A. No sir I think we got that off the notes.

Q. Where were the notes taken from?

A. I don't know.

Q. Didn't you make your own notes?

A. No sir.

1961 Q. Who did?

A. Mr. Nixon, I reckon.

Q. Do you mean to say that you went and made this estimate by notes given you by a third party?

A. Yes sir.

Q. Hadn't you and Mr. Getaz compared them to see whether they were correct or not?

A. I think we compared them to see if they were right, but I don't remember about those edged brick.

Q. When did you compare them?

A. After we had made our estimates.

Q. So you made your estimate upon Mr. Nixon's notes?

A. Yes sir.

Q. Did Mr. Nixon's notes show that these bricks were laid on edge?

A. I suppose not.

Q. Don't you know?

A. No sir I do not know.

Q. Well if you don't know you didn't study Mr. Nixon's notes very carefully, did you?

A. Yes sir.

Q. Well you say you afterwards compared your results with Mr.

Nixon's notes to see if they were correct; how about the brick being laid on edge?

A. I don't remember about them being laid on edge?

Q. Well that would increase the price wouldn't it?

A. It would to a certain extent, but not very much.

Q. Well to what extent?

A. I expect probably one-third.

Q. Now if they were laid in cement wouldn't that still further increase the price?

A. Yes sir.

Q. How much?

A. That would increase it, I shouldn't think more than
1962 20 or probably 25 cents on the yard; I don't know that it would increase it that much hardly.

Q. How much cement a yard would it take and how much additional labor?

A. Well that 20 cents would cover the labor and cement too.

Q. I want to know how much cement it would take per thousand to lay those brick?

A. Well I couldn't tell you that.

Q. Why not?

A. If you were laying them in a wall a barrel of cement would lay 1,000 brick.

Q. It would take more to lay brick paving wouldn't it?

A. No it would take about the same amount.

Q. What is that worth?

A. The cement?

Q. Yes sir?

A. About $1.75 a barrel.

Q. Now how much additional labor would it take to lay the bricks on edge in cement?

A. It would probably take a very little extra labor. I couldn't exactly tell you how much it would take.

Q. Wouldn't it take a helper to mix up the cement and furnish it?

A. It would take a helper to keep the brick to the man that was laying them and at the same time he could make the cement.

Q. What is an iron clean-out door?

A. It is a door, if I understand the term and definition of it right at the end of the stack to clean the soot and ashes out.

Q. Are you certain of that?

A. That is what I call it anyway.

Q. Well are you certain of it?

A. Yes sir I am certain of it if it was in the stack.

Q. How large a one was this one?

A. I don't know.

1963 Q. It was valuable according to its weight, wasn't it?

A. Yes sir, but we usually buy them doors for two and three dollars.

Q. Have you ever used one?

A. Yes sir.

Q. Where?

A. I used one in Dr. McCreary's house.
Q. Has that got a stack to it?
A. No sir, it has got a chimney to it. We put them in dwelling houses sometimes.
Q. What was the size of the chimney and what was the size of the door?
A. We generally put them in 10 by 12 and 12 by 14.
Q. In dwelling house chimneys?
A. Yes sir.
Q. Suppose this was 18 by 24, what would it be worth?
A. I couldn't tell you. I would have to be governed by the weight of it.
Q. What would it weigh being that size?
A. I don't know Mr. Caldwell.
Q. If you don't know the size or weight of it how can you put a price on it?
A. We were going by the usual size of those things.
Q. Wasn't this an unusual stack?
A. No sir no larger than common.
Q. How high was it?
A. I don't know the height of it.
Q. Wasn't it larger than common house chimneys?
A. Yes sir I suppose it was.
Q. Isn't it a fact that a stack 42 inches in diameter will require a clean-out door fully 2 feet square?
A. No sir not necessarily.
Q. Do you know whether it is necessary or not?
A. It should be so a man can get there with a scraper, or where a man can get in a hole 12 inches square to clean out a stack.
1964 Q. You mean a small man can get in there?
A. Well a pretty good size man can get in there. You (referring to Mr. Kimball) could get in there.
Q. Why didn't you reduce the price on the iron stack as well as on the clean-out door?
A. I don't think we done anything with that?
Q. I asked you why you didn't?
A. I don't know why we didn't.
Q. Was that item on the notes furnished you?
A. I don't think it was. It was on another man's notes I expect.
Q. What other man's?
A. I don't know who the man is.
Q. Why didn't you reduce the price of the coal chute shown on page "27" of William Wheeler's deposition?
A. I don't know anything about that item at all; I don't think we had anything to do with it.
Q. That item contains lumber and other materials in your line don't it?
A. Yes sir.
Q. How much rock have you taken out of pipe trenches 2½ to 3 feet wide and 3 feet to 5 feet deep and running close to houses, for the purpose of laying water pipes therein?
A. I hav-n't taken out any.

Q. Then you are not competent to estimate that character of work are you?

A. No sir not that quality of work.

Q. How many yards of macadam in strips 3 feet wide have you laid on public streets covering water pipe trenches?

A. Not any.

Q. Do you know what it would cost to do that kind of work?

A. We thought it could be put on there for about 5 cents is the way we estimated that work.

Q. What made you think so?

A. Because it don't take much labor to put it on.

1965 Q. What does the macadam cost?

A. I don't know what they paid for it. We used to get it for 75 cents a yard.

Q. Delivered?

A. Yes sir, right on the ground.

Continuation of cross-examination by C. T. CATES:

Q. *Item 36.* Mr. Munding I notice in *item 36* of yourself and Mr. Getaz, appearing at the top of page "7" of your report and referring to 61,000 vitrified brick in Portland cement you deduct as an over-charge from the price and amount stated by Mr. William Wheeler, the sum of $366.00 and say that $19.00 is a fair price for vitrified brick in Portland cement. Now please state how you make up that $19.00, giving the several items of cost entering therein. First how much do you allow for brick?

A. We allow about $12.00 I think for the brick.

Q. How much for Portland cement a thousand?

A. About $2.00. A barrel of cement to the thousand brick.

Q. Do you mean to say that you can buy a barrel of Portland cement for $2.00?

A. You couldn't do it now, but you could I suppose at that time.

Q. Don't you know that it is cheaper now than it ever was?

A. No sir I don't know that.

Q. Did you buy any Portland cement ten years ago?

A. No sir, but I know what the Black Diamond run at, and the Portland was from 25 cents to 50 cents higher on the barrel.

Q. What is Black Diamond selling at today?

A I don't know what it is selling at today.

Q. What is Portland cement selling at today?

A. I don't know.

Q. What was it selling for in 1895?

A. The Black Diamond was selling from $1.50 to $1.75 to the best of my recollection.

1966 Q. I am asking you about Portland cement, not Black Diamond?

A. Well it was worth from 25 to 50 cents more on the barrel.

Q. Well how much a barrel?

A. Say $2.00 then.

Q. Would a barrel lay 2,000 brick?

A. Yes sir.

Q. Well now what other item of cost is there?

A. There would be a little sand.
Q. How much sand?
A. From ¾ to a yard of sand; ¾ of a yard say.
Q. And how much for the sand?
A. From 70 to 75 cents a yard.
Q. Then 50 cents for ¾ of a yard of sand?
A. Yes sir about 50 cents.
Q. Well what other element of cost?
A. There would be a man to lay them.
Q. How much would you pay the mason for laying them per thousand?
A. About $2.50 a day.
Q. I am asking you how much per thousand?
A. I meant $2.50 a thousand.
Q. Now how many helpers would he have to have?
A. Well now the helpers—one man would get the brick to two men, and the morat*r* maker would make up the mortar for several men, so I should suppose anywhere from 60 to 75 cents would pay the help he would need, taking it on that basis.
Q. Would pay both the helper and mortar man?
A. Yes sir.
Q. Well what other element of cost?
A. That would be all.
Q. Wouldn't you allow something for staging?
A. No sir.
Q. You would not?
A. No sir.
Q. Would you use any?
A. Yes sir we would use some, but we wouldn't allow anything for it.
1967 Q. Why?
A. Because when we get a bid on brick, the man furnishes the staging; that is figured in the amount of stuff.
Q. Who would furnish the staging?
A. The contractor.
Q. It would cost him something wouldn't it?
A. Not much.
Q. How much?
A. I am not prepared to say.
Q. Now Mr. Munding, would one man lay a thousand vitrified brick in Portland cement in a day?
A. He ought to do it.
Q. I am asking, does he do it ordinarily?
A. Yes, ordinarily I expect he does it.
Q. Well do you know it?
A. No sir I don't know it.
Q. Isn't it a fact Mr. Munding that you don't know how many vitrified brick a mason can lay in water-tight form in one day?
A. No sir.
Q. Well do you mean that you don't know?
A. I don't know.
Q. *Item 40 of the Munding and Getaz report* referring to item 40,

being an over-charge of $31.60 being the cost of 6.32 yards of cement grout referred to on page "45" of Mr. Wheeler's deposition. You state that $8.00 per yard is a fair price for grout. Now how do you arrive at that Mr. Munding?

A. I don't know that we went into any actual figures about it, but cement grout is just two buckets of sand and a bucket of cement mixed up in batter form and poured into the wall. There is no extra labor about it.

Q. How much cement does it take to make a cubic yard of cement grout, mixing two buckets of sand and one of cement?

A. I don't know that I can tell you.

1968 Q. Then if you don't know how much cement and sand and other stuff enters into a yard of that grout, of course you can't tell the proper cost of it, can you?

A. Well now was that cubic yards?

Q. I am talking about a cubic yard?

A. I can't tell you that.

Q. On what sort of a yard is your price of $8.00 given, a square yard or a cubic yard?

A. We have got a yard there; say you call it one i-ches or two inches thick.

Q. How big was the yard you based this price of $8.00 on?

A. Well that was in the brick—the brick laid in a cubic yard of grout ain't it?

Q. No I am asking you what you based that price of $8.00 on, whether it was a cubic yard or a square yard one or two inches thick?

A. Well if it is a cubic yard that will put it in; that is all I have got to say about it.

Q. But I understood you to say you didn't know how much cement would be required to make a cubic yard?

A. No sir I do not.

Q. And didn't you ask me awhile ago if that price of $13.00 referred to a cubic yard and didn't you intimate that you didn't understand it as referring to a cubic yard?

A. Yes sir.

Q. And didn't you also intimate that your price of $8.00 was based on a square yard one or two inches thick?

A. Yes sir or three feet thick; I will add that to it.

Q. In *Item 36* which we were talking about awhile ago, you report that $19.00, would be a fair price for vitrified brick laid in Portland cement?

A. Yes sir.

Q. There is no doubt about that is there?

A. I don't think there is in my mind at all.

1969 Q. Now Mr. Munding let's go to *item 48* referring to 90,000 vitrified brick at $20.00 per thousand as set out on page "51" of William Wheeler's deposition and as appears at the top of page "9" on your report before you. Why do you give us a price there of $18.00 a thousand instead of $19.00?

A. Well one is laid in cement and the other is not, isn't it?

Q. Well I am asking for your reason?

A. Well it is laid in lime I suppose.

Q. Well then in item 48 right under that 46,000 vitrified brick which we charge $25.00 a thousand, you allow us $20.00; why do you make that difference?

A. Well I just can't answer that question right now. I will have to look at my notes and see.

Q. Why didn't you allow us $20.00 a thousand for the other brick laid in cement?

A. I cannot tell you until I see my other notes.

Q. What other notes?

A. I have some paper at home I done some figuring on.

Q. Where are those papers?

A. At home.

Q. The fact is however that you have made a price of $18.00, $19.00 and $20.00 per thousand for laying the same kind of brick, that is vitrified brick in cement and are unable to give your reasons for so doing?

A. Right now I am, yes sir.

Q. Now then down here in *item 51*, referring to 15,000 vitrified brick in chimney stack for which William Wheeler charged $27.50 and you charged $23.00. How did you arrive at that charge of $23.00?

A. That brick cost $12.00 as them other brick you spoke about being $12.00, and we allowed you $23.00 for them.

Q. Well why did you?

A. Because $27.50 is too much money for them, that is all the reason that I can give you.

Q. Well why is $23.00 enough?

1970 A. Because it is a plenty. They are not laid on the ground. I thought that was enough from my general experience in such work.

Q. Well give us the estimate of cost entering into your price of $23.00?

A. I don't think I can do it.

Q. In other words, you had an opinion that $27.50 was too high and that you would scale it down to $23.00?

A. We knew it was too high.

Q. Then you didn't make any estimate of the cost entering into that $23.00?

A. No sir.

Q. And neither did Mr. Getaz?

A. I don't think he did.

Q. And you just based that upon your general idea of cost entering into that matter?

A. Yes sir and the majority of men do the same thing.

Q. *Item 72*. Referring to an item appearing on page "54" of William Wheeler's deposition, that is 182 yards of cement concrete where Mr. Wheeler charges $2.00 per yard. Now what do you say would be a fair price for that concrete?

A. Well I should say $1.50, what we have got here.

Q. Now Mr. Munding how much cement would be required to make a yard of concrete cement flooring?

A. Well we have to be governed by the thickness of that?

Q. Well how thick was the yard upon which you based your price of $1.50?

A. About six inches.

Q. Do you know how thick the yard was that Mr. Wheeler based his estimate on?

A. No sir we couldn't ascertain that.

Q. Well now how much cement would be required to make a yard of cement concrete flooring six inches thick?

A. I can get at that a little better if I can explain it my
1971 own way. A barrel of cement would make 6 or 7 yards spread out 6 or 7 inches thick with the sand and rock in it. I can explain it better that way than to go into your details.

Q. Well can you figure up your elements of cost making your $1.50 charge here; are you prepared to do that now?

A. No sir I am not now.

Q. Have you ever done that?

A. Yes sir——

Q. Or is that your estimate?

A. —and I figured it up too.

Q. When did you figure it?

A. When we were going over this.

Q. Did you figure it or Mr. Getaz?

A. Mr. Getaz did but I was right over him when he figured it.

Q. Now in *item 75* we charge $1.50 a yard for granolithic flooring and you allow us $1.25; why do you make that difference?

A. It is not as thick.

Q. Do you know that it wasn't?

A. Well nobody could tell that.

Q. Then you were making an estimate upon concrete and granolithic flooring the thickness of which you didn't know?

A. No sir we didn't know and I think we so stated in here.

Q. You didn't so state it in this report?

A. I think we did; I think we aimed to put it in here.

Q. Please find it for me if it is in here?

A. I don't know that it is in here. I think we aimed to put it in.

Q. Did you ever buy any enameled brick Mr. Munding?

A. No sir.

Q. Did you ever lay any?

A. No sir.

Q. Did you ever handle any?

A. Very few.

Q. Do you know what the price of them are?

A. They run from $40.00, $50.00 to $60.00 and maybe higher.

Q. The fact is you don't know do you?

1971½ A. Well they vary. The price varies and the quality varies.

Q. You have never bought any?

A. No sir.

Q. You don't know that they had been up to $90.00 at one time?
A. Well yes some of them are $100.00 today.
Q. Of course if you never used any in building you don't know the proper cost of laying them?
A. Yes sir I would know pretty well what they would cost, because they are laid as good No. 1 pressed brick are laid.
Q. Don't you know that they are laid better and require more skill in laying than the ordinary press brick?
A. Yes sir they do.
Q. And don't it require a special mortar to make the joints set up well?
A. No.
Q. They don't. If you never laid any how do you know?
A. I have seen them laid.
Q. But you never laid them yourself?
A. No sir.
Q. Then you don't know the cost of laying enameled brick from actual experience?
A. No sir, not having laid them myself.
Q. You never figured on the actual cost of laying them did you?
A. No sir.
Q. And therefore you are not competent to pass upon that question are you?
A. I know that this price you have got here is too much.
Q. What price?
A. $36.00 a thousand for laying them.
Q. But you are not competent to pass upon that question never having had any experience in laying them?
A. Yes sir I would pass upon that question if I had never seen a brick.
Q. Well although you would say that was not a fair price if you had never seen an enameled brick, or never seen one laid, you are not competent to pass upon what would be a fair price
1972 from actual experience, are you?
A. No sir not from actual experience.
Q. Mr. Munding, you never built a reservoir to contain water did you?
A. No sir.
Q. Sir?
A. No sir.
Q. You never had any experience in planning or building one did you?
A. No sir.
Q. And you don't know how much cement it is necessary to use in lining the reservoir in order to make it properly secure and water-tight, do you?
A. No sir.
Q. You don't known how much cement was used in the construction of the reservoir of the Knoxville Water Company, do you?
A. No sir.

Q. You don't know to what thickness the cement is put on, on the inside of that reservoir, do you?

A. No sir.

Q. That was a pretty big job wasn't it, in building that reservoir?

A. I should suppose it was.

Q. Did you measure it up?

A. I helped Mr. Getaz to measure it; I helped him to measure it around.

Q. You just measured around it?

A. And the depth of it.

Q. How did you get the depth?

A. We took a chalk line and a heavy piece of iron and tied it on the end of a pole about 16 to 18 feet long and held it out just as far as we could until it went to the bottom, and when it struck the bottom, we drew it out and found how low down it was wet, and measured that line then from there down to the end of the wet.

Q. Then you didn't measure from the top of the reservoir down to the bottom?

A. Well that was simply to get the water line.

1973 Q. You were simply measuring the depth of the water?

A. Well we measured that and the length of the line above the water.

Q. How deep was the reservoir?

A. I think between 17 and 18 feet. You have got it there on your notes, hav'n't you?

Q. You never had any experience in making earth work water-tight either, did you?

A. Yes sir.

Q. Where, as it is with this reservoir 18 feet deep, and the dimensions of this reservoir, did you ever have any experience in work of that kind?

A. No sir I never did.

Q. Now that was a pretty difficult matter to get the earth out of that reservoir, wasn't it Mr. Munding?

A. No sir I think not.

Q. Well how did they get it out?

A. I think they wheeled it out.

Q. Was it all earth or part earth and part rock?

A. From the looks of the ground, I would say it was all earth.

Q. Don't you know that that hill over there is of a remarkably rocky formation?

A. I didn't see many rocks over there.

Q. Isn't rocks one of the characteristics of the formation of this town?

A. Yes sir, but it is tolerably clear up there.

Q. How do you know it was?

A. From the general appearance of the ground.

Q. You just assume that that was all earth taken out of there?

A. Yes sir.

Q. And you didn't make any allowance for rock?

A. No sir.

Q. How did they get the earth out?
1974 A. I think they wheeled it out.
Q. Up over the banks?
A. Yes sir, but that bank wasn't there at that time; they wheeled the dirt out and that dirt made a part of the bank.
Q. Now didn't it require an extra amount of labor and skill not only to take out the earth, but to form those banks there?
A. No.
Q. It did not?
A. No sir.
Q. That is your idea about it?
A. Yes sir.
Q. Did you calculate the amount of earth excavated from the reservoirs?
A. No sir I didn't do that.
Q. Who did that?
A. Mr. Getaz did that
Q. Mr. Getaz himself?
A. Yes sir.
Q. When, Mr. Munding were you employed by the city to make the estimates that you joined with Mr. Getaz in making?
A. The date?
Q. Yes sir.
A. I think it was July the 3rd, or probably it might have been the 1st; I think it was probably the 1st.
Q. This July?
A. Yes sir this last July. I think it was the 1st.
Q. How long did it take you and Mr. Getaz to get your report ready?
A. I think we have been working on it probably 8 or 10 days. I have got the time set down; but we didn't work steadily; some days we worked all day and some days we only worked from morning until noon.
Q. Now tell us what kind of an examination you made of the property?
A. We have gone to it at both places.
1975 Q. Both at the pump station and filter plant?
A. Yes sir.
Q. How long were you at the pump station?
A. We stayed there I think once a half day.
Q. Were you there at any other time?
A. Yes sir we have been there four times. We were there this morning.
Q. I am talking about before you made this report?
A. Oh yes we were there three or four times.
Q. Well how long altogether were you there at the pumping station?
A. All the hours put together?
Q. Yes sir?
A. I suppose we were there probably 15 or maybe 20 hours at different times, putting them altogether.
Q. How long were you up at the filter plant and reservoir?

A. I cannot tell you. We went up there four different -imes, but I cannot tell you how long we stayed there. We stayed there once about a half a day when we measured the depth of the reservoirs. We measured them very carefully.

Q. Did it take you a half a day to do that?

A. Yes sir very nearly.

Q. Well you saw that the water company had done a splendid piece of work at its pump station, didn't you?

A. Yes sir they have a nice work there. Some of that brick work is a little rough, but they have a nice plant down there.

Q. And you saw also that the work up at the filter plant was first class, didn't you?

A. All but the raising of that standpipe, and that is only ordinary work.

Q. I am talking about the filter plant?

A. Oh, the house; yes sir that is very nice work.

Q. What is the defect in the standpipe?

A. Well they have got some pretty big joints in it; it is a
1976 pretty rough job.

Q. Can that work be laid in Portland cement without the joints being wide?

A. Yes sir.

Q. You never laid any foundation for a standpipe did you?

A. No sir.

Q. You never had any experience in that particular kind of work, did you?

A. No sir.

Q. The fact is Mr. Munding from your examination you discovered that the water company in building its pump station and filter plant had been endeavoring to do first class jobs and had done first class jobs?

A. Yes sir I am very well pleased with their work. As I told you some time ago there was some of that work a little rough, but to take it all through it is a very good job.

Q. I believe you said you were employed by the city to make this report?

A. Yes sir.

Redirect examination by Mr. PICKLE:

Q. Mr. Munding, are you an educated man?

A. Well I am self-educated, what I know.

Q. In your experience as contractor and builder have you built many or few houses?

A. I have built a good many.

Q. You said that Mr. Nixon handed you a list of items. Was it not with the request that you estimate the fair cost upon those items?

A. Yes sir.

Q. You compared that with the statements of Mr. Wheeler in his deposition in this case and had them before you when you made your report?

A. That is correct, yes sir.

Q. Mr. Nixon is working on this case as an expert for the city; that is the Mr. Nixon you refer to?

A. Yes sir.

1977 Q. Your estimates were confined to work of a class that fell as a general thing, within your knowledge as a contractor and builder?

A. Yes sir.

Q. You didn't undertake to interfer- with other items?

A. No sir we didn't interfer- with other items.

Q. Were any other items submitted to you except items of that class?

A. No sir.

Q. At the time of making your estimate and examination of the plant, did you have before you such information as afforded by Mr. Wheeler and such plans of the buildings as were afforded by the water works office?

A. Yes sir, we had the plans.

Q. You were asked if it wasn't your purpose in intering upon this investigation to decrease the prices. I will ask you whether or not you had any such purpose, or whether or not you were asked to do anything except to make an estimate of the fair price from your experience in such work?

A. That is all we had to do, was just to make a fair estimate.

Q. Mr. Munding you were reminded in cross examination that you have made estimates on vitrified and perhaps other brick at different amounts per thousand; they were alike variations of Mr. Wheeler on the same work was-'t they?

A. Yes sir.

Q. Mr. Munding, in the case of items about which you could arrive at no satisfactory conclusion, or where in doubt, did you make any changes in the report?

A. No sir we made no changes.

Q. Were you able on cross examination to recall all the reasons that may have occurred to you at the time of making up your estimates?

A. No sir.

Q. The items were numerous and required much consideration?

A. Yes sir, a good deal of thought to keep up with them.

Q. Is there a rule Mr. Munding for calculating carpenter work by the amount of lumber used in a building?

A. Yes sir.

1978 Q. What is that rule Mr. Munding?

A. Well it used to be that the price of lumber in a house would build it. Now we estimate by the square. We will put so much weatherboarding at so much money, and so many nails at so much money, and the scantlings at so much money, and throw them altogether and say we have $6.50 for a square of weatherboarding, that includes the labor and lumber, and then we say so many squares in the house.

Q. State whether or not you adopted that rule in this case?

A. We adopted the rule of so much a thousand for the lumber.

Q. State whether or not that is a rule that prevails among contractors and builders in making up estimates for buildings?

A. To a certain extent, yes sir.

Q. State whether or not in making up your estimates of this work you put the prices and quantities at such figures as you would have been willing to take the work yourself?

A. Yes sir.

Q. Mr. Munding, state whether or not when the materials were not to be seen, from the fact that they had disappeared from the construction, or where covered up so that you could not inspect them, you adopt the rule of estimating on such materials and such work as was suitable for the class of building involved?

A. Yes sir.

Q. What is the proper or ordinary method of laying a floor—a brick floor—in such a building as an engine house where there are no special specifications to the contrary?

A. Well we lay that in sand, and lay the brick flat.

Q. Did you observe the same rule with reference to your estimates for lumber for buildings that had disappeared? that is, estimating such lumber, brick, &c. as would have been used by a contractor who was undertaking those jobs?

A. Yes sir.

Q. You were asked something about the railing around the
1979 pit, and you had the impression that you were estimating by that item the present railing?

A. Yes sir.

Q. Suppose there had been a railing there before. Should it have been more expensive than the present one to have answered all purposes?

A. No sir the present one would have answered all purposes.

Q. Now Mr. Munding if it turns out that in fact the material, such as brick and lumber and labor were obtained by the water company for the construction of these works that you have estimated at a smaller price than you have estimated, what effect would that have upon your estimates?

A. Well it would have taken down our prices.

Q. I suppose for instance you have allowed 25 cents a cubic foot for the excavation of the reservoir and suppose it was done for 12.½ cents, what effect would it have?

A. That would cut it down of course.

Q. In the matter of excavation; have you had excavation done at a less price than you have allowed?

A. Yes sir I have had it done for less. I have had it done for 20 cents.

Recross examination by Mr. CATES:

Q. But Mr. Munding, you have had no excavation done in a reservoir like this one of the water company's have you?

A. No sir.

Q. You have had no excavation done in a pit like that at the pump station have you?

A. No sir.

Q. Now do you mean to say that it would be suitable and proper from the standpoint of good construction to lay a floor in the engine room out of brick, simply laid in sand?

A. Yes sir.

Q. And flat?

A. Yes sir.

Q. Don't you know that passage over that with wheel-
1980 barrows and other implements would knock that floor all to pieces?

A. Of course it would.

Q. Then you would have to relay it, wouldn't you?

A. Yes sir, but in a general way we always figure a brick flat unless specified otherwise.

Q. Then you figured brick laid flat in sand?

A. Yes sir.

Q. And not brick on edge laid in cement?

A. No sir.

Q. Now you were asked upon redirect examination as to whether or not you made any estimation of prices on work that you hadn't had any experience in, and you said in substance that your estimation of prices was confined to work in which you had had experience?

A. The majority of it I have, but you asked me about excavating a reservoir and I told you I never had done that kind of work.

Q. You never dug any trenches for pipe either, did you?

A. No sir.

Q. You never excavated any pits for engines, did you?

A. No sir.

Q. You never built a pumping station, did you?

A. No sir.

Q. Nor a filter plant?

A. No sir.

Q. And you never did any water tight work, did you?

A. Not in dirt, no sir. Well I have done some too, in the way of coffer dams in the creeks here when they were building the sewers, but that don't come under that head.

Q. Now upon what prices did you base your estimate as set out in the prices along with Mr. Getaz?

A. Upon the prices we got for work.

Q. When?

A. When the plant was built in 1880 or 1870 or whenever
1981 it was. I have been in the business 29 years and I generally keep track of everything of that kind. I know that lumber was so and so, and work so and so.

Q. In what years did you estimate the prices for work?

A. In the years stated there.

Q. You didn't estimate them for the year 1901?

A. No sir.

Q. Nor for prices obtaining in 1902?

A. No sir.

Q. And the same is true of lumber?

A. There has not been much advance in 1902.

Q. But there was a considerable advance in prices in 1900 over prices of 1887 and 1883?
A. Not so much.
Q. But there was an advance?
A. Yes sir, the advance has been greater for the last 18 months than ever before.
Q. Don't you know you couldn't get a brickmason in 1900 for $2.50 a day?
A. Yes sir I could hire them today for that.
Q. Men competent to lay that work down there?
A. I was talking about bricklayers generally.
Q. I am talking about brickmasons competent to lay that work you have been talking about?
A. Yes sir I could have done that 18 months ago.
Q. What are good masons getting today?
A. $4.05.
Q. Wer'n't they getting as much as $3.50 in 1900?
A. No sir.
Q. Wer'n't they getting $3.50 in the Spring of 1901?
A. I don't think they were.
Q. And the price of lumber had materially advanced in 1900?
A. Not a great deal.
1982 Q. Wasn't it materially advanced in 1901?
A. Not a great deal.
Q. But it had advanced over the prices given by you?
A. Yes sir some, but not a great deal.
Q. So that the prices given by you throughout this estimate are not the same prices that obtained for lumber and materials of different kinds in March 1900 and in March 1901?
A. No sir.
Q. They were somewhat lower than the prices obtaining in March 1900 and 1901?
A. Yes sir they were lower.

Redirect examination by Mr. PICKLE:

Q. I believe you stated that the advance up to March 1901 has been slight?
A. It has been slight. The greatest advance we have had has been in the last 18 or 20 months.
Q. The brickmasons' Union have established a price here now?
A. Yes sir.
Q. And they had not then?
A. They had not then. There was a Union but prices wasn't as high as today.
Q. You were asked if you had built reservoirs, pump stations, &c, and you say you have not?
A. No sir.
Q. But you have done excavation work as well as building?
A. Yes sir.

1983 F. C. KIMBALL, recalled, on behalf of the defendant.

Examination by Mr. PICKLE:

Q. Mr. Kimball I want to ask you to give the basis of your estimates of the cost of the reservoir which you estimate in round numbers at $33,000.00; I mean the figures that you and William Wheeler used as to earth and rock excavation for that reservoir, a full description of the bottom and walls of the reservoir as estimated by you and Mr. Wheeler, giving their thickness and composition upon which you based your estimate?

A. In regard to the present reservoir of the Knoxville Water Company, I will say that it is the one, and I think about the only item entering into the construction of these works that we have no adequate knowledge of, *not* plans concerning it, and for the want of that adequate knowledge, and from the fact that we could not excavate or get into the walls for the purpose of determining their composition without throwing the entire town out of water during the period, we estimated the cost of that reservoir at so much per million gallons' capacity in a lump sum, based upon our experience in building reservoirs of like description elsewhere.

Q. Did you in your estimate consider that there was rock as well as earth excavation, and if so, what quantity of rock excavation?

A. I can add nothing further to my former reply except to say that my experience in building reservoirs, I simply count capacity, size and description elsewhere based on so much per million gallons' capacity.

Q. Does that method of estimation contemplate any per cent. of rock excavation?

1984 A. It might, or it might not; and in that connection I will say that our experience, which has extended over the adjoining State of Kentucky, where the soil is very similar to this, has been that reservoirs of this description cost from $7,000.00 to $10,000.00 per million gallons' capacity, which is quite a wide range, which would cover contingencies of rock and extra hard work, but we assumed for this purpose $8,000.00 per million gallons' capacity, to which was added a sum of about $700.00 for fencing, grading, seeding, soiling &c. which made the amount which we obtained.

Q. You still don't answer my question. What per cent. of rock excavation does this method of estimate contemplate?

A. It is not taken into consideration in specific percentage. It may or may not include rock, and the price may be high or it may be low, and it is estimated that way simply from the fact that we had no knowledge whatever of the construction except as work of that kind generally would be constructed to conform to good practices.

Q. What thickness did you make the bottom under that estimate?

A. I can give you no different answer to that than the question above answered.

Q. What thickness in construction did you give the sides?

A. I can only give the same answer, that is that we estimated it according to best practices in building reservoirs for this purpose.

Q. You don't know what kind of cement was used in that reservoir in its original construction?

A. I don't know positively.

Q. How much of that sort of estimate goes to excavation?

A. Well that would be difficult to tell. Usually the excavating of a reservoir composed entirely of earth work, would be about 40 per cent., and the placing of it, rolling, ramming &c would be about 60 per cent.

Q. The two combined?

1985 A. This is based on simply the earth work itself.

Q. Now I will ask you Mr. Kimball, if you have not done so, to please produce and file the pipe book to which you refer in your former deposition?

A. The pipe book is at the office of the Company and subject to the inspection of the city, meaning by that the Construction Record book containing a list of pipes etc. as laid about town.

Q. From whom, naming all the parties, did you buy brick for the construction since you have been connected with it here, especially I refer from the period of 1891 or 1897?

A. The best answer I can give to that from memory is that we have bought brick at various times from all the brick dealers in Knoxville, and with the exception of the enamelled brick used at the Pumping Station, my recollection is we have -ought a portion outside of Knoxville, and that embraces the Knoxville Brick Company, the Jones Brick Company, as it then was, the firm of Middleton and Fuller I think, who used to be in the brick business, bricks from out here west of the City—I believe the yard has been controlled by two or three different parties whose names I*m* cannot recall; in fact we have bought brick wherever we could obtain them, and sometimes had considerable difficulty in getting them.

Q. From wh*at* did you buy the vitrified brick?

A. From the Knoxville Brick Company as I have heretofore testified.

—— ——.

The further taking of depositions was adjourned until Tuesday morning, Aug. 11th. 1903, at 9 A. M.

1986 The taking of depositions on behalf of the defendant-Mayor & Aldermen of the City of Knoxville, was resumed, pursuant to adjournment, before the Special Master, at the Federal Court Room, Knoxville, Tennessee, on this August 12th, 1903, at nine o'clock A. M., in the presence of counsel for both parties.

LAWSON IRVIN,—the next witness, first duly sworn, deposed as follows:

Examination by Gen. G. W. PICKLE:

Q. Lawson, what is your age, residence and occupation?

A. My age is going on 52. I am a resident of #121 Florida street, Knoxville, Tenn. Occupation is that of contractor.

Q. For what sort of work are you a contractor?

A. I follow excavation, moving dirt, rock, building culverts, and so on, building pikes, and railroads, and foundations and all other kinds of excavations.

Q. How long have you been engaged in the contracting business such as you have described in the city of Knoxville?

A. Going on 21 years or a little over. I don't know exactly the date.

Q. State whether or not you did the excavation work for the Knoxville Water Company for its reservoir?

A. I did the excavation work—I dug it nineteen and one-half feet deep according to the profiles, plans and specifications.

Q. Did you do that as a contractor?

1987 A. Yes sir, I had an agreement with them.

Q. State whether you did the whole of the excavation?

A. I did all the excavation of the reservoir, yes sir. I dug the whole or pool in other words.

Q. At what price per cubic yard did you do that excavation?

A. My recollection now is, I think I got twelve and one-half cents a yard for it, that is my recollection. I am not positive on this, because I did the work and got the pay and I didn't keep any recollection particularly about it. My first agreement was with a man named McDonald, and he fell through with it, and there was a lapse of sometime, I don't remember how long, and then I took up the work under an agreement with the other company—the water-works.

Q. State whether or not twelve and one-half cents was a fair price per yard for that sort of excavation at that time, and since?

A. Yes sir, that is the usual price, especially where there is a big amount of material to move, that makes some difference—that is my recollection—it was a fair price at that time.

Q. State whether or not there was any rock excavation in that reservoir?

A. Any solid rock to blast? In my recollection I don't remember anything of that kind. Probably might have been, but I don't remember of doing any. The only rock that was moved there was these gravels you dig up. The work was done principally by undermining, and we got down near the bottom after we started in with the slope, and worked around so we could undermine it. The dirt was thrown with "wooden gluts" which are beaded on with iron on the end, driven down with a sledge hammer, and set back

1988 seven or eight feet, principally done with that prosecution.

Q. State whether or not such rock as were found were moved and classified as dirt?

A. I don't think we had any classification at all. That is my recollection. I don't remember of having any.

Q. You mean that it was all regarded as dirt?

A. Where there is no specification it is earth—it is all considered as earth.

Q. In the excavation of the reservoir state whether or not the sides were built up above the natural elevation, as it existed before the excavation begun?

A. I think my recollection is it is—that is my recollection. Now I know nothing about these matters particularly. I started, when I was constructing that reservoir there, there was a diameter something like that—I started right here in dumping the dirt from the cart, and spread it three inches thick, and we kept right around as the carts come until we came back to here—that is the commencement of it we spread the dirt three inches thick, and we kept it that way until we got back to where we started from. We had to dig up the gravel and rock and throw them down the embankment on the other side. How high this is above the natural ground I don't know. There is an embankment there.

Q. Was this layer or these layers of three inches of dirt around the top or edge of the reservoir that you speak of?

A. Yes sir, that makes the embankment—that is compact—that was from the embankment—it may be ten or twelve feet or wider—that makes it compact and sometimes we had to sprinkle that. The carts with the wide trend comes around there.

Q. What do you mean by wide trends?

A. Wide tires.

1989 Q. How wide?

A. Four or five inches—some four and five and some three.

Q. What was the object in having the tires or the tire or the trend of the carts so wide?

A. I didn't say that especially—that was what we had—that was to compact three inches, to make it sol-d, same as natural, as it was before we took it out, that was the intention, the way I understood it, the way I understood the specification, and the way I carried it out.

Q. How wide was that three inches spread around the top or mouth of the reservoir?

A. It went from edge to edge—that is you say a circle this way—here is your work here—in here—and out here your diameter—and you fill from here to here to the edge of your embankment.

Q. How wide was the top of that embankment?

A. I don't remember sir.

Q. Several feet?

A. I don't really remember to tell you the truth how wide it is. It is wide enough for a mule to go around it and probably turn around but to be positive about it I don't know how wide it was. I can't get at it in my head.

Q. How high was that above the natural surface—any point around the top of the reservoir—I mean the embankment that you put in and packed down the way you have descrived?

A. I don't really know but it is pretty high. Now you know there is a street called "Payne" street—now there is one hill there—about where Mr. Wood—you know the man who lived there—I suppose about seven or eight feet above it—but now it is considerably away above that street.

Q. Several feet?

1990 A. Yes sir, several feet—I don't remember how much but several feet. I have not been up to that place since I built it, on the inside.

Q. And in putting these layers on three inches at a time and driving over it you make it compact—did that make it solid?

A. Yes, that makes it natural.

Q. As hard as the natural earth?

A. Yes sir, more than natural.

Q. Was there any other tamping of it?

A. No sir.

Q. Except what was done by driving the carts over it in that way?

A. Not by me, and none I know of sir.

Q. Do you remember how many yards you dug out under the last contract with the Knoxville Water Company?

A. My recollection Mr. Pickle is, I don't say it for certain, but my recollection is it seems to me like ten thousand, it may be that or it may be less or more, but the figures sounda that way to my recollection.

Q. You mean then that you removed ten thousand yards?

A. Yes sir, my recollection of it, to be positive of it I don't know though.

Q. Lawson, state whether or not you dressed down the sides and bottom of the reservoir and completed the excavation?

A. I shaped it according to contract sir.

Q. Dressed it up or completed it in other words, and the work was accepted?

A. Yes sir, that is my recollection.

Q. Now you stated that sometime perhaps a year or two before you did this excavation for the Knoxville Water Company you had done some other excavation under a contract with McDonald

1991 that fell through—was that excavation on this same site?

A. Yes sir.

Q. How long was that done before the Knoxville Water Company purchased that property over there and became interested in it?

A. I don't remember how long—sometime—probably a year or two.

Q. Who paid you for that excavation?

A. Mr. McDonald paid me for a part of it, until it fell through, and then after a lapse of time the city paid me.

Q. How much did the city pay you for that work?

A. The $400. the balance due me.

Q. And that was a year or two before the Knoxville Water Company became interested in the property?

A. That is my recollection.

Q. Did you do any of the ditching for the laying of pipes for the Knoxville Water Company?

A. Yes sir.

Q. When was that—was that about the time you did the reservoir work?

A. After I finished it sir.

Q. On what streets did you do the ditching?

A. From down Patton street into Vine, or Mabry, it was then at that time, and then straight up near the Catholic Church and then I come back and went up Central Avenue until I got to hard work—near Mr. Sullivan's—ran into rock and was blocked right there.

Q. You say you ran into rock after going that far?

A. Yes sir.

Q. What did you get a yard and what was a fair price per yard for excavating ditches?

1992 A. My recollection is that I got three cents a foot, or probably two and one-half cents per foot.

Q. Per lineal foot?

A. Yes sir.

Q. What width and depth ditches did you dig?

A. I don't remember now. I think some of them were probably five or six feet, according to the bank—probably deeper some of them were. I couldn't say for certain how deep they were. They were wide enough for a man to work in satisfactorily. They could pick the dirt and throw it out from the bottom. I sectioned them off in sections. Each man worked in his own section.

Q. And you did this work on the streets you have mentioned?

A. Yes sir.

Q. And it was for the laying of the original pipe that was laid in this plant?

A. Yes sir.

Cross-examination by Mr. CALDWELL:

Q. Do you remember what year it was you did this excavating at the rese-voir?

A. I don't recall for certain Mr. Caldwell. It has been some time ago.

Q. Was it the first work you ever done as a contractor in that line?

A. That is the excavation of a reservoir it was. I had dug some gas ditches.

Q. It was in 1882 or 1883 was it not?

A. Probably it was. I don't know sir for certain.

Q. You had been contracting you said for twenty one years?

A. Yes sir. The first work I done was for old man Martin Shea. He was the contractor. I took the job from him.

Q. On a railroad?

A. No sir, in Knoxville.

1993 Q. And what was that?

A. Excavation for the Brewery up on the railroad here, near Cripple Creek.

Q. Mr. Shea did that?

A. I did that by contract and he paid me, Martin Shea.

Q. At 12½ cents per yard?

A. I don't remember that about the price but I do remember that that commenced my first work.

Q. But you don't remember what you got for that?

A. No sir.

Q. How long was that before you built the reservoir?

A. I don't remember.

Q. And you can't remember the price that you got for the first work you did?

A. I don't remember but my recollection is it was tolerably tough material. I think it was 25c if I am not mistaken—it was a small job.

Q. Where was that in Knoxville?

A. Do you know where Brown's coal yard is up here—know where Cripple Creek is here—it is right on Jennings street, corner of Jennings and the railroad there.

Q. And you think you got 25c. for that?

A. Yes sir.

Q. And that being so isn't it probable that you got this reservoir excavation too *law*?

A. No we take earth—I built a pike just now for 17c. and I have been doing work here for 25c. I built a pike at Edgewood. I got a railroad to build now—part of one, for twenty cents. Prices are higher now. You could get men at that time for eighty and eighty five cents a day, and some seventy-five cents, and now it is $1.25 and so on. Teams were then $2.00 and you have to pay $3. and $2.75 for them now.

Q. Are you positive and can you swear to it beyond any
1994 doubt that you got 12½c. for it?

A. I won't swear positively about—it—that is my recollection. That has been a long time ago and I made something out of it, and I have paid no further attention to it. I made my living out of it—did it satisfactorily according to my agreement—that is as to my recollection—I am swearing from that.

Q. When did you excavate the foundation for the Empire building?

A. Last year probably.

Q. Two years ago wasn't it?

A. Yes sir.

Q. And would you swear what you got for that?

A. I got twenty three cents a yard for it.

Q. And that was in 1901?

A. Yes sir.

Q. There was no rock in that?

A. Yes I got 23c *cents* for it.

Q. And there was not rock in that?

A. No sir. Probably 23½ or 23¾, but 23 was in it as the leading figures.

Q. Did you excavate the foundation for the Knox County Courthouse?

A. Yes sir.

Q. And what year was that in?

A. I don't remember—Judge King was my man who had me to pay I remember that.

Q. About ten years ago?

A. Yes sir probably was I don't know for certain.

Q. Do you remember Lawson what you got for that?

A. I think it was 12½ cents if I am not mistaken. Probably ten and probably eleven years. You see there is a different way in prosecuting earth—you take this earth of Mr. Sanford—have to
1995 haul that for a mile and a half. This other dirt you have got nothing to do but to pull it out to you, and that is the way I did the court-house lot and sometimes get something for it.

Q. What did you get for the court-house dirt?

A. I would not say for certain, I think 12½ cents, probably 11c. I am not positive about those things.

Q. I mean when you sold the court-house dirt what did you get for that?

A. I don't remember—when a man wants one load we would sell it for 25c.—it is owing to the stuff.

Q. How much is a load—a yard?

A. Yes, a two horse load.

Q. You sold the court-house dirt?

A. Some of it and the other I used on the embankment and the way they built the wall next to the jail.

Q. You didn't sell any dirt at the reservoir?

A. No sir, they needed it there. The haul is right at you—where you have a long haul it makes a big difference—than w-ere you have the chance to put the stuff right at you.

Q. Was the regulation or regular price for earth excavation in Knoxville in your time ever below 18c. per yard?

A. Yes sir, I have done it myself.

Q. But you had to underbid other men to get it?

A. I was underbid at Mr. Jim Cowan's place. I bid 12½c. and Hood & Poston bid 11½ cents and they got the work—the work was first awarded to me and they took it from me afterwards.

Q. That was about 1870 was it not?

A. That was after I built this reservoir. That is my recollection—I won't be positive about those things—I got my pay and don't remember just about these things.

1996 Q. You have no positive recollection about any of them?

A. No sir. I wouldn't be positive about it only this—I am positive I dug the excavation for the reservoir up there, and that I did this down here, and I am positive I dug that at the court-house—positive about doing the work.

Q. You first worked at the reservoir under Mr. McDonald?

A. Yes sir.

Q. And how much was he to pay you?

A. I think about the same price. I think I just took it over at the same as the other.

Q. What year did you make the contract with Mr. McDonald in?

A. I don't remember.

Q. And you don't remember what McDonald was to pay you?

A. I think the same price—12½c.

Q. What was the city to pay you?

A. Not anything, only I did the work and they got the benefit

of the digging out of the whole and they paid me the balance that McDonald didn't pay me.

Q. How much a yard did the city pay you?

A. The city only paid me $400. balance due from Mr. McDonald. They didn't pay me by the yard.

Q. Was that or not more, or was it less than 12½c. per yard?

A. Figured at the same thing as the other and it made $400. I think.

Q. How much did McDonald's work amount to?

A. I don't remember that. A time or two I got in a rumpass with these men about falling behind with me. He couldn't pay me and in the lapse of time the city came around and paid me. In other words I wouldn't let the other gang go in there until I did get paid.

1997 Q. How deep did you dig the reservoir?

A. 19½ feet deep.

Q. Was that from the surface or level of the ground down 19½ feet?

A. I won't be positive about that. The thing was to be 19½ feet deep, and I think I dug it 19½ feet deep from the natural ground. That is in the center—you start with slopes this way and come to the center.

Q. Did you get anything extra for that sprinkling?

A. No, I didn't do that.

Q. Who did that?

A. I think somebody else did that—I won't be positive about that. I believe I did have it done a time or two but the dirt got so damp it didn't need it.

Q. What did you get for that sprinkling?

A. I don't remember.

Q. Where did you get your water?

A. Sometimes they would haul it there. There was very little sprinkling done—that is my recollection.

Q. Did you get anything else or anything extra for that spreading?

A. No sir, that was in the agreement—same as in making a railroad, to level the dirt.

Q. Did you get anying for rolling the ground?

A. No sir never rolled it.

Q. Tamping it then?

A. No sir.

Q. Get anything for trimming the banks?

A. No sir.

Q. Who did that?

A. I did the inside work.

1998 Q. Who did the outside?

A. I suppose the company did that.

Q. Do you know who did it for them?

A. No, I don't know who did it for them.

Q. Did you get anything extra for throwing the gravel and stone out of there?

A. No sir, that was in my agreement—I just kept boys and men there——

Q. You took out 10,000 cubic yards?

A. I don't say positively. I say that is my recollection.

Q. Did you take that out under your contract with the Knoxville Water Company?

A. Yes sir.

Q. And how much did you take out under the contract with McDonald?

A. I don't remember sir. I don't remember whether 10,000 yards or not.

Q. If you took out 10,000 yards for the water company how much about did you take out for McDonald and the city?

A. I couldn't give any idea at all because it was all old matter to me and I couldn't study it up.

Q. How far down did you get under the contract with McDonald?

A. Considerable—a good piece. I don't know. Probably six or seven feet—I won't say positive- about that. We started right in the hill.

Q. As much or more than half down?

A. I don't think so Mr. Caldwell quite.

Q. Did you slope the banks as you cut down?

A. Yes sir.

Q. So that each foot you went down you would dig out less dirt?

1999 A. Yes sir.

COMMISSIONER: You mean the hole was smaller at the bottom?

WITNESS: Yes sir.

Mr. CALDWELL: Lawson, did you put the concrete on the sides and bottom of the reservoir?

A. No sir, I didn't have anything to do with it.

Q. Who did?

A. I don't remember that—it seems to me Mike Rorex—no I think he was corking in the ditches. I can't remember—I know the parties were doing it. I saw them starting with it—probably with the brick—I won't be certain but some prosecution started in the bottom of it but what it was I could not swear and don't remember. Wish I did.

Q. You don't remember what was put in the bottom of it?

A. My recollection is some brick was put there but I am not going to be positive about that.

Q. Did they put concrete in the bottom?

A. Probably did Mr. Caldwell. I don't know. I was not around there much after I quit.

Q. Do you know how deep or thick the concrete was?

A. No sir.

Q. When did the bottom fall out—was it before the reservoir was filled with water?

A. I don't remember. I remember that something did happen up

there but *was* it was I don't know—I think water was in it—there was some water there in it.

Q. Isn't it the fact that it fell out before it was filled entirely with water?

A. I don't remember—I believe I heard but I was not up there.

Q. Didn't you go up to see it when the bottom fell out?

A. I don't remember.

2000 Q. Didn't you repair it when the bottom fell out?

A. No sir. I didn't do anything but do the excavation is all I had to do with it.

Q. How deep did you say you dug the ditches on the streets?

A. My recollection is that probably some of them were five feet and four feet, and probably six or seven feet, just as the grade demanded them.

Q. How wide were they?

A. Probably two feet or may be three feet. I think two feet would have been plenty.

Q. Do you think two feet enough for a seven foot ditch?

A. It is owing to the kind of material it was in.

Q. Is it a fact that most of those ditches were only about twelve inches deep?

A. Oh no sir.

Q. Did you dig any twelve inches deep?

A. You mean down—dug away below that.

Q. Did you dig any 12 inch ditches?

A. Not any I remember of.

Q. Dug that deeper?

A. I don't remember of stopping at 12 inches.

Q. Are you positive you dug any seven feet deep?

A. That is my recollection—that when coming down where Mr. Reps Jones lives we got into a back-bone and had to do it to get the grade below, that is my recollection, but I won't be positive.

Q. You don't remember just how deep any of them were?

A. I gave a man two sections a day to his task.

Q. How long were the sections?

A. The sections would be ten feet.

Q. Ten feet long and two feet wide?

2001 A. Yes sir.

Q. How long would it take a man to do one of them?

A. Some would get done before night and some wouldn't get done at all.

Q. What size pipe did you put in on Mabry street?

A. I didn't have anything to do with that but I think an eight inch pipe or probably larger.

Q. How much did you pay your men?

A. 80c. and 90c. a day. We had some men to do that work by 3.30 and we had some there not hardly did one in a day.

Q. And you paid them all the way from 2½ to 3 cents a running foot?

A. No, that is what I got. I got 2½ or 3 cents but I don't remember which, but I demanded more when I got near Mr. Sullivans.

Q. What made you demand more?

A. Because it was worth more.

Q. Were you losing money?

A. Yes sir when I hit rock I couldn't do it at the same price.

Q. How much money did you lose?

A. I don't remember. I may have lost some on the ditching but not on the reservoir.

Q. You don't remember how much you lost on the ditching?

A. Yes sir, but I threw up that and that is the reason I demanded more.

Reëxamination:

Q. Lawson, who was the engineer of the water company that superintended the work while you were in its employ——

A. Was it Lopass—let me see.

2002 Q. Let me refresh your recollection: was it Mr. Fuller?

A. That is who it was—that is who it was—Fuller.

Q. Now you spoke of getting 25c. for doing the job of excavation for Mr. Shea, sometime before—why was it you got higher than the ordinary price for that?

A. Well, a heap of times you run into different material—and this was muck, and would mire and so on, and it was near a drain and it was building a brewery—had to go down through it, and it was really worth more.

Q. Was it a small or large job?

A. Very small job.

Q. And you stated you got 23c. or 23½c. for excavating the Empire building foundation—was that a large or small job?

A. Tolerably small job—not very big job.

Q. What was it that made the excavation worth more—that excavation— that the reservoir and the court-house?

A. Had to haul it so much further. Had to put it in wagons in other words—we didn't have to do that at the reservoir—didn't have to have men to shovel it—could scrape and plow it. Then this was undermining. When you can scrape and don't have to haul dirt through town one mile—you can't do it for less but where you are required to do that you are allowed more for your work. I got figures for the Deaf & Dumb Asylum 25c. for that work and my figures were accepted by Mr. John McCoy and Mr. Tom Moses today.

Where you have to haul dirt away out of town and away off from these places where you dig it out it makes a difference but where you can scrape the dirt and throw it to one side the expense is not as much and you can do it cheaper.

2003 Q. I believe you have stated you did excavate some gas pits?

A. Yes sir I commenced one—it has been filled up—it has fell through—it was for McDonald, and at the same price 12½ cents.

Q. When you finished the reservoir how was the bottom—did it appear all right?

A. My recollection is there was rock flowers there—there was soft dirt or decayed dirt or "flowers" what I mean by that stuff—not solid—cave in—these rock flowers—may be four or five feet deep—

may be deeper—but you run into them and that is what the dirt men call them—"rock flowers."

COMMISSIONER: Did you contract and take your own chances on how much stone you would find in there?

WITNESS: When no specification for it. If there had been stone in there we would get another price—provisions made that way—when nothing said about stone and you have stone you get another price for that. Where there is no provision in the contract for rock it leaves it open for any agreement you make afterwards—that is the regulation or rule for contrac- work since I have been contracting.

Reëxamination:

Q. Have you ever held any official position here in Knoxville?
A. Yes sir, I was aldermen here.

Recross-examination:

Q. Were you an aldermen when you did this work at the reservoir?
A. No sir, I don't think I was.

2004 Reëxamination:

Q. The excavation that you made before you took the contract from the water company was made, as I understand, under a contract with Mr. McDonald?
A. Yes sir.
Q. Did you have any contract with the city of Knoxville about it at all?
A. No sir, I don't think I did. I had all of my agreement with Mr. McDonald, and that is the man I made my agreement with.
Q. And the city agreed to pay you?
A. Yes sir, after a lapse of time—I held hold for my pay.
Q. And as it was an improvement upon their property they agreed to pay you and did pay *you* before they sold it to the water company?
A. I held hold so nobody else would get it.

Recross-examination:

Q. What did you do with the dirt you took out of the Empire building excavation?
A. Right down here where Mr. Hall is I put some of it, and some over at Mr. Adkins, and some one place and another—I don't believe I could call over all the different men—some got two or three loads, and some twenty five and some fifty and scattered promiscuously here and there. Some paid me 25c. and Mr. Askins only paid me 10c. we hauled it across the bridge and put it down.
Q. You took the contract for 23½c. for the excavation with the privilege of selling the dirt?
A. Yes sir, the dirt belonged to me after I taken it out of the hole and they didn't need it there. I had to give some of it away of course.

Q. What time in 1901 was that?

2005 A. I don't remember now Mr. Caldwell. It was sometime near that though I won't be certain. I paid no attention to these things at all to tell you the truth about it.

Q. You began that in the Spring of 1901?

A. I probably did—I couldn't tell—I have some papers of that. I have the agreement with them there—but not here.

Q. You did some work after that at the reservoir about 1901 for the Knoxville Water Company?

A. Yes sir, I did some for Mr. Kimball.

Q. And at that time you simply took out dirt with scrapers and deposited it on the ground?

A. Yes sir.

Q. And you got eighteen cents for that?

A. Yes sir—it was really worth more—it was near a drain there and it is tough stuff—it stuck to the scraper almost like tar.

Q. It is the same kind of dirt up on top of the hill?

A. No sir, that dirt was not wet but this dirt was at a trench—some pipes—and got mucky—a part of it was all right and a part of it was not.

Q. Who bid against you for the excavation of that reservoir in 1882 or 1883?

A. I believe that the work was given to me as a preference.

Q. You don't remember whether anybody bid against you or not?

A. No sir, but that is my recollection.

Q. Did Pat Campbell bid against you?

A. No sir he was not in the business—not here.

Q. Did Martin Shea, the old railroad contractor?

A. I don't guess he did—if he did I don't remember. I think he was out prosecuting some railroad work. He was partly sick then.

2006 Q. Was the contract let to bids?

A. I don't know—I know I got the work. I think my recollection is I was preference. I won't be certain.

Q. Was it advertised in the newspapers?

A. Not that I remember of. I think I got the work at the same figures I did it before. I think that is the way I made it with the water company at that time.

Q. And the price you got for building the reservoir back there in 1882 or 1883 was simply for moving the dirt—and didn't include anything for concrete walls and concrete work?

A. Nothing but the excavation was all.

Q. That was all you did?

A. That is all.

Re-examination:

Q. You state that you did some excavation for Mr. Kimball at the Water Company plant in 1901?

A. Yes sir, that is recently.

Q. And just where was that done?

A. That was in the rear of the purifier. It was against the building—digging it down and making some improvement up there.

Q. You got eighteen cents for that?

A. Yes sir, that was a small job.

Q. How much was it?

A. I don't remember but we did it very quickly and satisfactorily to him—I don't know how much it was. I rushed it out very fast.

Q. You say it was tough?

A. Yes sir, it was material that had got damp. It was this red clay—something similar to this over here and it was mucky
2007 bad stuff.

Q. Was there other excavating done in that same locality for buildings etc.?

WITNESS: Do you mean by me?

Q. No, by anyone?

A. Yes sir, there were buildings up there and other things up there.

Q. You were asked if the excavation up on the hill would be of the same kind: what did you say about that?

A. It is the same kind of clay it is up here.

Q. The excavation over about the filter plant would be higher up on the hill—would it be of the same quality of excavation as that you dug out last?

A. If it was wet it would be. It was near a seepage at the side of a building—this I done last—and pipes and things like that—where you had to work.

Q. Did you fix that price on account of the kind of material?

A. I *knowed* the material, and I went and looked at it before I bid on it, and I gave my figures as to what I thought it was worth.

E. L. DEARING,—the next witness, first duly sworn, deposed as follows:

Examination by Mr. G. W. PICKLE:

Q. Mr. Dearing, give your age, residence and occupation?

A. I am 33 years old; I live at #517 East Hill Avenue. I am a Master Plumber.

Q. How long have you resided in Knoxville?

A. About ten years.

Q. How long have you been engaged in the business of Master Plumber in Knoxville?

A. Seven years.

2008 Q. Mr. Dearing, do you know what is meant by the term "service" as applied to the plant of the Water Company?

A. As we consider it always it is the line that runs from the main into connections for the houses—between the house and the main.

Q. Have you *be* considered what would be the fair cost of putting a service of the domestic size, such as is used by the Knoxville Water Company?

A. Well, I never considered it as giving an estimate—never considered it that way—We never do anything of that kind but I have run it over in my mind at different times as to what it would cost us or somewhere in the neighborhood of the cost of the service.

Q. Well, what on an average, would be in your opinion the fair cost of putting in a domestic service in Knoxville Tennessee?

A. Well, that depends of course on an average as to the amount of pipe to a house, as the width of the street, of course, determines the average service. The water company, as I understand it runs from the main to the inside of the property line only. We run from there to the house, or to the fixtures.

Q. And who do you mean by we?

A. The plumbers.

Q. Well, what would be a fair average of pipes required on the streets of Knoxville, taking them altogether, for extending a domestic service from the pipe or main line to the property line—I mean taking all the streets as they are, upon which the water pipes are?

A. I am not famil-ar with the sizes of all the streets. A good many of them are very narrow, and none of them are extremely
2009 broad. I would say—I don't suppose it would run over twenty to twenty-five feet.

Q. Would it run over twenty feet taking all of the streets together do you think?

A. Of course that would be a matter of conjecture with me. It would not miss it very far.

Mr. CALDWELL: We object to that form of question. The proper way is to ask what the average width is, and not to suggest what it is.

Mr. PICKLE: Well, assuming that twenty feet would be correct, what would you estimate the reasonable cost of installing of a domestic service, taking into consideration all the labor and material required for restoring the street etc.?

WITNESS: Well, what do you want that to cover—the old service or the new service—the old service had no shut off cock or stop and waste cock, as we call them, inside of the property line.

Q. Then speak of the old service—prior to the addition of that stop—that is what I want?

A. On streets outside of the paved streets, to figure on twenty feet—I would say would run around $5.50 or $6.00. That would be pretty close to the net cost of it. There would be a little profit in it if a lot were taken at that. To put in one or two a man couldn't take it that way.

Q. You mean and *map* a profit?

A. Yes sir.

Q. But that if he had several he could?

A. Yes sir, taking them regularly and carrying supplies and men for that one item you could take them that way and come out on them.

2010 Q. Mr. Dearing, are you familiar with the method of excavation for the laying of pipes in Knoxville?

A. I am with the sewer pipe out in the streets. We do not have

anything to do with the water pipe in the street. We excavate for the water pipe inside of the premises.

Q. What I want to know now is, what depth are you plumbers required by the rules of the water company to place connections you make with the water system underground?

A. Thirty inches.

Q. I will ask you whether or not the water company's pipes are placed on a level with the pipes you put in?

A. Since that rule went into effect I think they are.

Q. What width ditch is necessary and is ordinarily made for the laying of cast iron pipe, say from twelve inches down?

A. Well now, I have never run any of them but we run the clay pipe. Of course we don't have the work at the bells that they would have on the cast iron pipe but then again it depends a great deal on the depth. The deeper the ditch the wider you must make it. Say take a ditch 3 or 4 feet deep two feet will be ample for a twelve inch pipe.

Q. How wide is necessary and proper say from 12 inches to 20 inches—if you put that kind of pipe down?

A. I will say thirty inches.

Q. Have you or not Mr. Dearing in the prosecution of your business in Knoxville had to excavate trenches 2½ feet deep to a considerable extent?

A. Yes sir—in running lines of pipe from the property line into the residence all of them must go thirty inches. For every house that we put in a service from the property line in we run a trench 30 inches.

2011 Q. State whether or not you have encountered much or little rock in such excavations?

A. It is very seldom that we strike rock. In some sections we strike it quite often and in other sections we never strike it at all.

Q. Where in the city has it been most frequently found according to your observation—in what part of the city?

A. There is quite a ledge that runs through Fifth Avenue from very near Gat street on across to the Park street bridge—in that section we strike rock.

Q. Is that in North Knoxville?

A. I don't know just where the line of old and North Knoxville connect.

Q. Is it North of the railroad?

A. Yes sir.

Q. Taking your experience and the whole of Knoxville that is covered by the water system—about how much rock excavation in those trenches in laying pipe, would, in your opinion be encountered —what percentage—How much per 100 lineal feet?

A. I don't think we would hit a trench with rock in it in one out of one hundred.

Q. And about what would you put it?

A. Say less than one out of 100.

Q. How much less?

A. If you average it all over the city I don't suppose it will run

over 1/2 foot to 3/4ths of a foot per 100 because it is very seldom that we strike a trench that has any rock in it.

COMMISSIONER: That is within two and one-half feet ditches?

WITNESS: Yes sir.

2012 Q. Would that percentage be materially changed in working at five and six feet?

A. I expect it would—at some places—where we would strike rock by going deeper where we would not strike it by going only 2 1/2 feet. But the service pipes are laid not over three feet below the service. Two and one-half are our instructions.

Q. And the mains of the company are laid, as you understand, at the same depth?

A. I don't know anything in the world about how the mains are laid. They run the services from the mains since this order went into effect the same depth as we run our services, so as to come in a line with our pipes.

Q. What, in your judgment, would be a fair price per cubic yard for rock excavation from the trenches that are cut through the streets for laying pipe?

A. Well the prices I have gotten for that have been $1.00 to $1.25. Some jobs would run $1.00 and you could come out nicely, and others would run a little more. It really depends on the location or where we are taking that out because if there is great danger we have to take extra precautions and of course it costs more. That is the price we get for it.

Q. Mr. Dearing, are there any architect's or engineering services necessary in putting in services?

A. Do you mean our part of the service?

Q. Or the other part?

A. None that I know of. A civil engineer you mean?

Q. Yes?

A. I never have seen one—no sir.

2013 Q. Mr. Dearing, have you had experience in restoring macadam upon trenches?

A. Yes sir.

Q. That have been filled?

A. Yes sir, we have to put new macadam on all trenches after the dirt is replaced.

Q. Have you observed the method by which that has been done in Knoxville in several years you have been here, on the streets, generally?

A, That is on the trenches?

Q. Yes?

A. The ordinance calls for 6 inches but from my observations the old macadam has been tamped in and new macadam sprinkled on top.

Q. What is a fair allowance per lineal foot on these trenches 2 or 2 1/2 feet in laying pipe for restoring macadam, taking into consideration the manner in which it is done, and that the old macadam is used in restoring it?

A. I do not remember of ever figuring that out by the foot. I

just have been taking the macadam—I could estimate just about how much it would take to cover my trenches—I estimate that and then go and put it on in that way.

Q. Well now, get at it in your own way and give us an estimate of about what it is worth per lineal foot to restore macadam on these trenches?

A. It would not run over 2 or 2 1/2 cents—about 2 1/2 cents I would say.

Cross-examination by Mr. CALDWELL:

Q. As I understand you to say you have never put in any of these domestic services?

2014 A. Not as the word "service" would mean for the water company When the old Lonsdale-Beaumont Water Company was here we run from the tap, that is we made the tap and put the lead connection on, and we run from there in in some cases.

Q. And what did you get for that?

A. We figured it in with the job complete—never separated it.

Q. Can you tell what you got on an average for it?

A. I guess I could figure it out by taking about the average of pipe and such as that.

Q. Do I understand you to say that twenty feet is the average length of these service pipes?

A. No sir, I didn't say it was. It is somewhere close to it, just in my mind, I have never figured it out.

Q. Why twenty rather than twenty five feet?

A. I said somewhere between twenty and twenty five feet. I don't know the width of the streets around over the city, and that is a matter of conjecture. There are more narrow streets than there are broad ones around the city.

Q. And which is the most thickly settled street in the city with the largest number of services or connections on it?

A. I couldn't tell you that.

Q. Isn't Gay street?

A. I would judge so from the number of business houses.

Q. Isn't it very much more thickly settled than any other street?

A. I do not suppose that there is a street in the city that has the number of connections on it Gay street has.

Q. How wide is Gay street from wall to wall of the houses?

A. I never measured it.

Q. But Gay street ranges from seventy to eighty feet wide from wall to wall?

2015 A. I couldn't say. I never measured it, but I suppose it would run somewhere close to that.

Q. And that would make the average length of service pipes from 35 to 40 feet?

A. It would on that one street.

Q. How wide is Main street?

A. I couldn't say—I never measured any of them.

Q. Is that wider or not than Gay street?

A. I judge it is no wider—I suppose it is somewhere close to the same width.

Q. That is one of the principal streets of the town is it?

A. Yes sir.

Q. How about Fifth Avenue?

A. That I guess is about the same as Gay street.

Q. So that the streets in the newer part of the town average over fifty feet from fence to fence?

A. Which do you call the newer part of town?

A. Say North of the Southern Railroad and West of the Knoxville and Augusta Railway?

A. Well, I couldn't say about that—I don't know—I have never measured any of the streets. On a good many of the streets the only way I have measured has been from the sewer main to the edge of the street—that would give half of it of course.

Q. How many have you ever measured less than 25 feet?

A. Quite a number of them. Some I have measured are over 25 feet.

Q. Isn't it a fact that in the narrowest street of the city twenty feet is about the average of the service pipe length

A. The narrowest streets of the city——

Q. Isn't it a fact that is the average for the narrowest 2016 streets—about that?

A. I believe it will run less than that on the narrowest streets. There are some alleys——

Q. But I am speaking of streets—alleys are not under consideration now—what is one of the narrowest streets that you have in mind?

A. I have not any particular ones in mind.

Q. Do you know of any streets in town less than forty feet from fence to fence?

A. I couldn't say about that because I have never measured any of them. Some of them look narrower than that but I don't know for these measurements are all matters of conjecture with me, and because I have never measured one of them.

Q. What lanes or alleys have water pipes on them that you know of?

A. I don't know how much has been cut out of these alleys along here—they had it on a short time back, a part of it has been cut off—I don't know how much. Marble alley has it.

Q. How many has Marble alley—only one block long is it?

A. I couldn't say about that.

Q. How is that?

A. There are not many alleys as far as I know that have mains in them.

Q. Is Marble alley a twenty five foot alley?

A. From fence to fence?

Q. Yes

A. To my knowledge of it I would say not. I don't know though for I never was in it enough to know anything about the width of it.

Q. Now you say that these services cost $5.50 to $6.00—that is upon an estimated length of 20 feet isn't it?

2017 A. Yes sir, just about that.

Q. And if twenty-five feet they would cost more than that?

A. Yes, certainly.

Q. And in making this estimate do you take into consideration what is known as the corporation cock?

A. Yes sir, the corporation cock.

Q. What size—½ or ⅝th inch?

A. I didn't make anything definite on that—I just went over it in my mind—here is another question: are you figuring for these now or years ago?

Q. At any time—I am trying to find out what you included in your estimates?

A. I understood that to be figuring some years back.

Q. Don't you know it to be a fact Mr. Dearing that the Water Company has never allowed a corporation cock less than ¾th of an inch?

A. Lonsdale-Beaumont Company.

Q. No, the Knoxville Water Company?

A. The water Company—as they are now—as I understand it.

Q. How long has it been that that was the fact?

A. I couldn't say about that.

Q. Ever since you came here isn't it?

A. As far as I remember they have been putting in ¾ths services far as I have known of them, but then I am not figuring on a ¾th which the water company put in because I never put in any of these.

Q. And did you consider that there was a ¾th corporation cock in these service pipe connections?

A. I was figuring on what we had worked on. It won't run much difference on that I don't suppose. I am not familiar with the buy-

2018 ing of corporation cocks because I never bought any because I didn't have to handle them.

Q. Do you know what the lead goose neck is?

A. It depends on what you consider the word "goose-neck" to mean.

Q. I construe it to mean something connected with this service pipe, I don't know what it is myself?

A. That is the "lead" connection we call it.

Mr. CALDWELL: Which is between the corporation cock and the end of the service pipe?

A. Yes sir.

Q. And what size did you allow for them?

A. They usually use ⅝th inch lead.

Q. Don't you know that the Water Company requires a ¾th inch one?

A. I don't know what they are putting in. All those I made I made ⅝th lead.

Q. Have you ever made any for the present Knoxville Water Company?

A. No sir.

Q. What would a ¾th inch corporation cock and a ¾th inch lead goose neck cost?

A. I couldn't say.

Q. They have fixed prices haven't they?

A. I know they have, but I have never bought any of these—I don't have to handle those. It is a matter of conjecture with me.

Q. About what would you estimate them at?

A. Well I would estimate, buying these in quantities that some years back they could be bought at 75c. or 80c. apiece, the corporation cock.

2019 Q. How about the lead goose neck?

A. It depends on how much lead they put in it.

Q. Say 15 to 18 inches?

A. A lead connection on a ¾ connection would cost somewhere close to 75c.

Q. Now did you include a stop and waste cock at the curb line?

A. I include the stop cock in the box there.

Q. This is a stop and waste cock at the curb line—what did you allow for that?

A. I never put in any stop and waste cocks. We just used the stop cock.

Q. Have you ever put in any kind of a cock at the curb line?

A. Yes sir.

Q. What did that cost—what would one cost—¾ inch one?

A. I couldn't tell you off-hand. I would judge though they would run about sixty cents. The boxes would run somewhere from 45c. to 50c.

Q. Did you ever put in boxes of that kind?

A. The boxes on the side-walks?

Q. Yes.

A. Yes sir.

Q. Stop cock boxes?

A. Yes sir, I have bought them as cheap as 43c.

Q. Those stop and waste cocks are of different weights for the same size?

A. Yes sir.

Q. And that effects the price does it?

A. Yes sir.

Q. Don't you know that the kind that the Knoxville Water Company uses are extra heavy?

2020 A. I know they are all good cocks. I don't know that they are extra heavy but I know they are all good ones.

Q. As good as there are in the market?

A. Yes sir. The ones I understand they got last were made by a firm that makes as good goods as are on the market. I don't know anything about the weight they buy.

Q. Now just inside the fence line on the premises of the water consumer there is a stop and waste?

A. There is on the new service lines the last two or three years—I don't know how far back that runs, but on the old services there were not.

Q. Have they been put in as long as you have had any connections to make in the vity?
A. No sir, as far as I remember they were not.
Q. How far back do you remember them?
A. I don't remember when they started—but I am pretty sure that they started after I came here.
Q. And when did you come here?
A. In 1893.
Q. Didn't they start in 1895?
A. I couldn't say.
Q. What do you allow for them?
A. I don't allow anything on the estimate I made.
Q. And why?
A. Because I was figuring back, as I understood it, before they were put in.
Q. Have there been more services put in since you came here than there were before you came?
A. I don't know. I couldn't say how many were put in before or how many since.
Q. Now there is also what is known as a stop and waste box——
2021 A. If you want to count that one inside of the fence—what they are putting in now, there is.
Q. That is in the service pipe construction now is it?
A. Yes sir, it is being put in now.
Q. How long do you know of that being used?
A. I couldn't say how far back.
Q. Give the best estimate you can?
A. I don't know but I know it has been since I came here. It was not being used when I first came here.
Q. How far back?
A. I couldn't say—several years though.
Q. What is a ¾th galvanized iron pipe cost?
A. Now or then?
Q. Now and in 1895?
A. Well, I couldn't say about 1895 but back around in that neighhood a ¾ inch pipe could be bought, or we did buy it from 3½ cents up.
Q. Taking a good quality for this purpose is 5c. a reasonable price for it?
A. It is now.
Q. And was it in 1895?
A. We bought it less than that then.
Q. In buying it in large quantities?
A. In buying it in large quantities you could buy it less than that.
Q. What did you allow for labor on a 25c. foot service pipe?
A. I didn't figure on 25.
Q. In the street?
A. The way I went over my estimate I figured that it would take $1.50 to put it in.
Q. What did you allow for labor?

2022 A. $1.50, or right close to it. Of course I didn't make any definite figures on any of it. I went over it roughly in my mind.

Q. What did you allow for replacing macadam?

A. Somewhere around forty cents.

Q. That is $1.90—what did you allow for replacing side-walks?

A. That is in the labor. I didn't figure to cut any cinderlithic side walk.

Q. What did you allow for that if it was cut?

A. Some of them they tunnel and where they have to cut I don't know what that would be because I never cut any of them. The firm I first worked with here I remember had one or two cut but they got Chandler & Co. to replace those—I couldn't tell you what they cost.

Q. Can you give us an idea what they cost?

A. No sir.

Q. Now taking these different items that you have mentioned, at the prices you have indicated, do you regard $8.00 as an unreasonable price for this work?

A. I don't know how about your ¾th inch services—most of those I put in for Lonsdale Company were ½ inch.

Q. Assuming the sizes of the different appliances to be as I have given them to you?

A. I couldn't base an opinion on it because I never bought a corporation cock and don't know what they are worth no more than a matter of conjector but I believe they could be put in for less than that. That cock inside of the fence, I don't know what that costs, but outside of that I believe it can be put in for less than $8.

2023 Q. Suppose you include them—would that be a fair and reasonable price?

A. I don't think it would run far from $8. with the cock inside of the fence but I believe it could be put in for less than that. I have not figured up anything of that kind understand.

Q. You stated in your examination in chief that if a number of these services were put in at the same time that *that* the price would be reduced on account of the number—in fact they are all put in separately are they not?

A. I meant by that that where a man keeps men on hand for that purpose only and carries a stock for that purpose only he can easily take them at a less price than where he would get one occasionally to put in.

Q. Even though he has to go from one part of town to another on the opposite side, and be continually going from one place to another, a considerable distance apart?

A. I believe he could put them in cheaper than by just getting one occasionally, yes sir.

Q. Did I understand you to say you had never laid any cast iron pipe?

A. Not cast iron mains.

Q. Then as a matter of fact you are hardly qualified to testify as to the cost of laying cast iron pipes are you?

A. No sir.—You mean cost of the pipe and labor?
Q. Yes sir?
A. No sir.
Q. Do you know what the size of the bell is on a 20 inch pipe?
A. No sir I don't know exactly.
Q. Do you know how deep on an average trenches for laying water mains have been excavated by the water company?
A. No sir.
2024 Q. It exceeds three feet does it?
A. I couldn't say Mr. Caldwell. I never paid any attention to the way they run their mains. That is something I never took any regular notice of and I wouldn't want to say.
Q. You don't know as testified to by the last witness that these trenches were sometimes dug as deep as seven feet?
A. I suppose very seldom the Water Company would run seven feet—I don't know anything about them running seven feet anywhere. They usually run, as I understand, I don't say that they do this, but it is my opinion they usually run with the grade of streets so far below the grade of the street. I don't know what that depth is.
Q. You have spoken of one ledge of rock running along 5th Avenue?
A. Yes sir.
Q. That is red rock?
A. Yes sir.
Q. To be found in all parts of North Knoxville?
A. Yes sir.
Q. In a good many places out there?
A. Yes sir, it seems to come up in ledges. You strike it again over near the Hospital.
Q. How about the ninth ward?
A. I have had very little trouble over there.
Q. But there is some red rock over there?
A. There is only one place I have in mind right now that I struck it and that is under the Fifth Avenue bridge.
Q. Now taking the whole town from what you know of it Mr. Dearing, considering the depth of the trenches dug by the Water Company, would you consider one per cent. a reasonable estimate of rock excavation?
A. Why, I don't believe it will run that much Mr. Caldwell in our ditches—I don't know about the Water Company ditches but the ditches in the yards I don't believe it will run that
2025 much because it is very seldom we strike rock.
Q. Houses are not usually built on rocks, are they?
A. That depends on what kind of a lot a man has. I don't know just how you mean that.
Q. Are the streets as a rule cut down from the natural level—below the lots?
A. Some of them are and some others are built up.
Q. Is it a rule that the lots are either of natural earth or made

earth, while the streets are as a rule cut down below the level of the ground?

A. I don't know as it is that way—I never took any special notice of that. Nearly all of the lots, or a good many of them have a little step right at the front, of some six to eight or ten inches, something like that but there are lots of streets that the lots are right along on a level with the street, and some of them are below the street. I wouldn't say a majority of the lots are above the streets.

Q. How many of these house connections have you made?

A. I couldn't say off-hand. I have never figured them up.

Q. You have been here since 1893?

A. Yes sir been in business for about seven years.

Q. How many Plumbers in Knoxville?

A. There are nine now. When I started in there were four, that is I made the fourth one.

Q. Can you give me any reasonably approximate estimate of how many of these connections you have made?

A. No sir.

Q. Do you know how many the water company has altogether?

A. No sir, never have asked. I presume they would have told me.

Q. I presume there are streets in town where you have never made any connections at all?

A. Yes sir. I would say there are—I don't know off-hand
2026 but I believe there are streets in the city on which I have never made any connections.

Q. In making your estimate of the cost of rock excavation—what did you include?

A. Labor and tools, blasting powder and incidentals necessary to break the rock up and remove it from the trench.

Q. Did you allow anything for taking the rock off of the ground and placing it somewhere else?

A. We usually dump it back into the trench. In some cases we break it up and use it for macadam.

Q. Have you had any experience in taking rock out from trenches from two and one-half feet to three feet wide in close proximity to houses, plate glasses, windows etc.?

A. Yes. I won't say about plate glass windows but I have in close proximity to houses.

Q. And blasting it?

A. Yes sir, and never broke a window.

Q. Did you include that kind of work in your estimate for rock excavation as given above?

A. Yes sir, if we struck that kind of work on a trench where our estimate called for that it didn't matter what turned up after we took the estimate and made the estimate.

Q. What is it worth without regard to what contract provides for?

A. On work of that class it is worth more than on trenches where it is open.

Q. How much more?

A. I would say 25c. more.

Q. Did you ever measure up a particular piece of rock work of that kind and get the exact amount so as to know what it would cost or have you made that estimate as a part of the general work?

2027 A. I usually made it as a part of the general estimate of the work.

Q. So you are not prepared to speak of the cost of that particular item by itself?

A. No sir.

Q. Do you know that all services are measured up by the Water Company and plotted upon their plans in the office, and that those plans show all services, buildings etc. in the city?

A. That is my understanding. I have frequently looked at that plan.

Q. And does that require engineering services?

A. I suppose it does. I don't know who does that for them.

Q. It requires engineer to do that work?

A. It does to make those plans. It does not necessarily require an engineer to put new services on there after the plans are made.

Q. And this work that I have been speaking about on the plans of the company is engineering work without regard to who does it, is it?

A. I don't know who did it.

Q. I was not asking who did it but I asked if the work mentioned was not engineering work?

A. Someone has to go out and make the plans of those services——

Q. And that is engineering work?

A. I suppose it would be called that. In stating awhile ago when I did that I didn't know of any engineer being needed on the services of any kind I didn't have in mind that plan at that time.

Q. Now in regard to the macadam—suppose it is to be spread six inches deep and three feet wide, is six cents per lineal foot a fair price for it?

2028 A. Six cents on that basis won't miss it very far.

Re-examination:

Q. What is the basis on which 6c. would not miss it very far?

A. Three feet wide and six inches deep.

Q. And using new macadam?

A. Yes sir.

Q. Six inches deep?

A. Yes sir.

Q. Now I believe you have stated that you put in services for the Lonsdale-Beaumont Water Company connecting with the mains?

A. I didn't make the connection to the main—they made the tap and we run from there into the house.

Q. That is you run into the street to the main?

A. Yes sir.

Q. And they connected it?

A. Yes sir.

Q. And you did the rest?

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A. From the street main into the house or the fixtures in the house.

Q. Now up to the time that the Lonsdale-Beaumont Water Company went out of business on its own account and became a part of the Knoxville Water Company had they been putting these stop and waste cosks on the inside of the property owner's property?

A. They had not on the Lonsdale-Beaumont Water Company's plant, but I am not positive of the other for I don't remember when they commenced but up to that time the Lonsdale Water Company had not.

Q. So up to that time nothing of the kind had occurred on the Lonsdale-Beaumont Company's property?

A. No sir, we never put them in over there.

Q. When in putting in the services that you assisted in or put in in part for Lonsdale-Beaumont Company did you use

2029 ¾ or ½ or ⅝inch cosks?

A. The majority of them we put in—at the curb—the curb cock was ½ inch. Nearly all of the Lonsdale-Beaumont Company connections, from my recollection, were ½ inch, because their increased pressure gave them so much more water than the other did with the ¾th inch.

Q. You were asked to state if the services on Gay street were not more numerous then on any other street in Knoxville. I will ask you to what extent there are domestic services on Gay street?

A. Well, I judge that there is a connection for each 25 feet front, and some of them are a little less than 25 feet.

Q. Is Gay street a business or residence street?

A. Business.

Q. Then are the connections or fixtures or not for domestic services?

A. They are not as thick on any street as Gay street—I don't suppose over one to fifty feet, and I expect they will average a good deal less than that on the residence streets.

Q. Gay street is not a residence street is it?

A. No sir, not what I would call a residence street.

Q. Well Gay, and Main streets and Fifth Avenue are streets to which your attention has been specifically called on your cross examination, and are among the widest streets of the city are they not?

A. Yes sir.

Q. The rock excavation that the plumber makes in connecting houses with the water plant is nearer to the residences or houses is it not than the water company's work in the street as a rule?

2030 A. Yes sir, if we have rock inside of the premises it is always nearer to the house.

Q. And you have never experienced any trouble in blasting from your work?

A. No sir, never have.

Recross-examination:

Q. What is known as a domestic service is the same thing whether it runs into a business house or a dwelling, is it?

A. Yes sir, that is the way I construe it.

Re-examination:

Q. Gay street is a comparatively short street is it running from the river to the railroad?

A. I don't know what you would consider to be a comparatively short street.

Q. How many blocks on Gay street?

A. About ten as near as I can guess it—from the river to the depot.

Q. Count and see?

A. There are ten on one side and nine on the other side of the street to the end of the bridge—that is counted a square between Jackson and Depot street. The railroad is in there. Twelve blocks would cover it.

And further deponent saith not,

—— ——.

E. G. Oates—the next witness, first duly sworn, deposes as follows:

Examination by Gen. G. W. Pickle:

2031 Q. Give us your age, residence and occupation?

A. 45 years. 1311 White Avenue. Cashier Mechanics National Bank.

Q. At Knoxville?

A. Yes sir, Knoxville, Tenn.

Q. How long have you been connected in an official way with the Mechanics National Bank of Knoxville, Tenn., and in what capacity?

A. I was book-keeper in the Mechanics National Bank in October 1882, and cashier in January 1890.

Q. And you mean to say you were book-keeper from 1882 to 1890, and cashier since 1890 continuously?

A. Yes sir.

Q. Mr. Oates I find in a contract made between Knoxville Water Company and one Frank M. Lowry, dated 4th of September 1882, wherein and whereby Mr. Lowry assumed to constructed a water plant at Knoxville, in consideration of the issuance to him of $200,000. of the capital stock of the water company, and $125,000.00 of the bonds of the company, secured by a mortgage given to George B. Shelden and William H. Bingham, of the City and State of New York, as trustees, this provision, at page 5 of the exhibit:

"And it is hereby mutually understood and agreed—C-1 the said Frank M. Lowry shall forthwith proceed to sell said $125,000. of first mortgage bonds and $200,000. of capital stock to such person or persons as will purchase the same for cash in hand at such

prices as that the aggregate sum derived from such sale shall in the judgment of the said George B. Shelden and William H. Bingham, Trustees, as aforesaid, suffice for the construction of the said system of water works, as aforesaid, and when such sale is made at such price, the purchaser or purchasers shall pay the price agreed
2032 upon by such purchaser or purchasers to the said Frank M. Lowry, and approved by said Trustees, to said Trustees, who shall then deliver said bonds and stocks to said purchaser or purchasers, and by whom the proceeds arising from such sale shall be deposited in the Mechanics National Bank, of Knoxville, on the account and to the credit of the Knoxville Water Company, subject to the joint draft or check of its president and secretary, by whom the same shall from time to time as the work of construction progresses be paid to the said Frank M. Lowry upon his requisition, countersigned by the manager of the company, which requisition and each and every one of them shall in all cases contain the statement of the amount, character and kind of the material, apparatus or construction for which the same calls for by the requisition so expended and is due, and in no case shall any such requisition be made, countersigned, accepted and paid except for sums actually and properly expended for labor performed in and about the construction of said works or for material or apparatus furnished and delivered therefore."

Now I wish *yo* ask you whether or not such an account as that described in that portion of the agreement that I have read was opened with the Mechanics National Bank, and if so, when and in whose names?

A. There was an account in the Mechanics National Bank in the name of Knoxville Water Company, the first deposit being made on July 27th, 1882. This account continued, the last deposit being made on December 9th, 1882, the total amount deposited during
2033 that time was $47,170. Books were finally balanced and vouchers returned on January 2nd, 1883.

Q. Will you please furnish to the stenographer to be copied as an answer to this question full statement of that account as it stands upon the books of the Bank?

A. I file herewith the sheet entitled "Knoxville Water Company in account with the Mechanics National Bank," with the exception that on the dates at which checks are charged it is not intended to itemize the checks. We have no method of telling what checks are charged on any given date—whether simply one check or a number of checks but the totals are correct charges for the dates mentioned.

Q. By whom, if you know, were the deposits made that are shown on this account?

A. I don't remember who actually made the deposits. As far as my memory serves me they were drafts drawn on Shelden & Co. of New York City.

Q. How did the account run—in other words was the amount deposited at once or was it deposited from time to time as necessity required?

A. It was deposited from time to time as necessity required.

Q. Was there any considerable balance in favor of the Water Company on this account at any time during its running?

A. No sir. It was very small.

Q. Do you know in a general way in favor of whom those checks were drawn that are set out in this statement?

A. As far as my memory serves me, and the only check I remember specifically, and the first one as I remember, was made payable to the City of Knoxville, $7800.00.

2034 Q. That amount was drawn out on the date it was put in, was it not?

A. Yes sir.

Q. Did the Knoxville Water Company have at or about that time any other account with your Bank except this one?

A. No.

Q. Did Frank M. Lowry have any account with your Bank at that time if you know?

A. I have not looked that matter up and really don't know.

Q. Mr. Oates assuming that the Knoxville Water Company had a paid-up capital stock of $200,000. and owned by gift of the city the use of the streets of Knoxville for the purpose of erecting, constructing and operating a water plant, and that under the restrictions of its charter it could issue not exceeding $150,000. of bonds, and assuming that $150,000. of bonds were put on the market of this company at any time since about 1885 or 1886, bearing six per cent. interest, I will ask you whether par value could have been realized from such bonds?

A. I think that par value could have been realized provided it was understood that the receipts from the bonds were to be used in construction or improvement of the water company's plant.

Cross-examination by Mr. CALDWELL:

Q. Mr. Oates, the first of these deposits by the Knoxville Water Company was made in July 1882—do you remember how long the Knoxville Water Company's plant was in course of construction?

A. No sir I do not.

Q. It run over a year did it not?

A. I really have nothing to go by.

Q. The last item in this paper is "out January 2nd 1883." What does that word "out" indicate?

2035 A. You understand that that is merely a transcript from our books—In originally making the statement we returned the vouchers—the vouchers having been returned already our books showed them returned on that day "out." We ordinarily say "Vouchers cancelled and returned" on a certain date, and we mark on our books showing they were returned on that date and in making the transcript say "out" at that time.

Q. The account was taken to some other bank?

A. That is my memory.

Q. You do not say that the $47,000 represents the construction cost of the Knoxville Water Company's plant?

A. I don't know anything about what it cost.

Q. Now in regard to the sale of these water bonds. I assume you have had no experience in the actual sale of water company bonds?

A. No sir.

Q. And you don't know what these actually were sold for.

A. No.

Q. And you don't know what efforts were made to sell them, or with what results?

A. No sir.

Q. You don't know what their market value was as established by sales or ascertained by negotiation?

A. I know nothing about it except opinions are all I can give.

Re-examination:

Q. State whether or not you base that opinion upon your experience and observation during the period stated as to sales of industrial bonds of the general description of the Knoxville Water Company bonds?

A. I *I* base my opinion upon sales of bonds.

Q. Now you are asked if the account, after it was closed, was not taken to some other bank—do you know whether or not the account was carried at all in any bank after this date?

A. I have no remembrance of it at all. On general princi-
2036 ples I inferred it was.

Q. Do you know to what bank?

A. No, I don't know anything about that.

Q. And all you mean to say then is that the account was closed at your bank with this date?

A. That is all I know.

Q. And that account represents all that was ever deposited in your bank, and drawn out?

A. This statement represents all that was deposited in the Mechanics National Bank, and all that was drawn out. The last check, $26.95, paid on January 2nd, was the charge that balanced the account.

Q. Who was that paid to?

A. I don't know who it was paid to. We paid it but I don't know who it was made payable to.

Recross-examination:

Q. That $7800 was paid to the city for the land that the water company purchased from it?

A. That is my impression—that is the way I remember it.

Q. So that if that statement represents the total cost of the water plant it cost something less than $47000?

A. That would be the indication.

Q. You have had no experience in sale of water bonds where the water plant upon which the bonds were based was not constructed, have you?

A. Nothing except reports—what people said to me about. I don't know anything about it and I never tried to sell any.

And further deponent saith not. —— ——.

2037 W. R. TURNER, next witness, first duly sworn, deposed as follows:

Examination by Gen. G. W. PICKLE:

Q. Give your age, residence and occupation?

A. I am 48 years old; reside in Knoxville, Tennessee, and am a lawyer.

Q. Were you an attorney for the city of Knoxville in the litigation that it had with the Knoxville Water Company that involved the recovery of a penalty for the violation of an ordinance regulating rates, being the case that went to the Supreme Court of Tennessee, and from that Court by writ of error to the Supreme Court of the United States?

A. I was one of the city's counsel in that litigation.

Q. State whether or not you had exclusive charge of the case, the management of it up to the time of its determination by the Supreme Court of Tennessee, and conducted trials in the Courts?

A. I was in consultation with the city attorney about the case probably during the time but so far as active preparation and trial of the case was concerned I did the most of it, if not all, in the Circuit and in the Supreme Courts of the State.

Q. Did that case involve among other issues the issue of the reasonableness of the rates prescribed by the city ordinance for the Water Company?

Gen. CATES: I object because the record in that case will show what the issues were in controversy therein and it cannot be proven by parol.

Mr. PICKLE: The record is here and I will put it in.

2038 The COMMISSIONER: The record is here, and I will sustain the objection unless you can show me some other reason.

Mr. PICKLE: Assuming that issue was involved in that case I will ask whether or not there was any consent on the part of the city, or its attorneys to abandon that or any other issue on the trial of that case either in the Supreme or Circuit Court of the State?

Mr. CALDWELL: We object to that for the same reasons heretofore stated.

COMMISSIONER: He can state as to any agreement outside of the record?

WITNESS: There was no such an agreement that I was a party to. There was something transpired between myself and counsel for the city about that matter which in fairness should be stated, and I will detail the facts as I remember them.

COMMISSIONER: You are, as I understand, stating what was outside of the record, and not what is contained in the record?

WITNESS: Aside from the record yes sir. Before this particular suit was brought I was counsel for the city in the prosecution of a similar one brought under the ordinance of July 27th 1900, I believe is the date of it, and on the trial of that case, it being conducted by the same counsel as those trying this latter case, Mr. Charles T. Cates, Jr., who represented the Water Company,

2039 offered no evidence on the subject of the reasonableness or unreasonableness of the rates fixed by that ordinance of July

27th, 1900, and there was nothing said about the matter before-hand. After this last suit was brought under the ordinance of March 30th, 1901, I believe, I am not certain of those dates, but I believe that is right, and just before the trial in the Circuit Court, or a little before the trial, I met up with Mr. Cates at the Imperial Hotel, and asked him if he proposed to try this case without offering evidence on the trial on that question. He said he didn't know, that he had not considered it; and I explained that I didn't care to put expense on the case by preparing to go into proof on that issue until or unless he was going to do so, probably remarking that I was induced to ask him that question by the fact that he had not offered any evidence on that issue on the trial of the previous case, and he said all right, that he would confer with his people, and would let me know whether I need go into that or not. The matter passed along then until about the time the case was to be tried, and the matter was again mentioned between us and Mr. Cates informed me that he didn't intend to offer any proof on that question. I said all right I would not either. On the trial of the case—it was conducted in view of that conversation between us—as I understand no evidence was offered on either side on that question. That is the occur-ence as it transpired.

Q. Well now I will ask you whether or not in the Supreme Court of the State, and of the United States, the question of reasonableness of rates was kept up or abandoned by the Water Company's counsel?

Mr. CATES: We object to this question for reasons here-
2040 tofore stated.

COMMISSIONER: The argument would not be in the record.

WITNESS: I want to say in answer to the question that the pleadings—assignments of error and written and printed briefs of counsel for the Water Company appear in the transcript of the record in that case that went to the Supreme Court of the United States and as you say speak for themselves on that subject. I understand that they insist on that issue but I do not mean to testify as to their contents. Outside of that I heard counsel for the Water Company argue the case both in the Circuit Court and in the Supreme Court of Tennessee, and upon both occasions that issue was insisted upon before the court as growing out of the record as it stood before the court.

Mr. CALDWELL: Plaintiff enters exception to the competency of the statements made by this witness as to matters connected with the statements or agreements of counsel outside of the record in the cause referred to; and further excepts on the ground that counsel had no power to make any such agreements, if they were in fact made.

COMMISSIONER: The Master over-rules the exceptions and admits the testimony into the record, but at the same time is of opinion that it can have no effect, but gives the defendant the benefit of it if the Master be wrong in his view.

Cross-examination waived.

Request for ruling.

The answer of General Elbert Wheeler to the question
2041 calling for a tabulated statement of the gross earnings of the plant from the time he became Treasurer, in 1892, found on page 42 of his deposition in Volume 2 of the Testimony, in this case, is permitted to stand only so far as it is responsive to the question and gives the table of gross earnings of the plant, and is expunged in so far as it undertakes to give the table of operating expenses or interest paid during said years. This order was made by the Special Master upon motion of attorney for the City, and said part of said answer is accordingly expunged.

Mr. CALDWELL: The plaintiff excepts to said question in so far as it calls for gross earnings for a period subsequent to March 30th, 1901, and so far as it calls for a statement of gross earnings prior to March 31st, 1889, on the ground that so far as collections since March 31st 1901 are concerned it is inadmissable in law to show what they are in this case, the inquiry being confined as matter of law to the date of the passage of the contested ordinance, and (2) as to the items of collection prior to March 31st 1899 the Master has already excluded the inquiry.

COMMISSIONER: As to the matters subsequent to March 31st 1901 the Master denies the request to have the receipts expunged from the record, this being in accordance with the rulings heretofore made. I will sustain Mr. Caldwell's exception—the proof is there, and if I am wrong about it it is there for the benefit of the courts above. I simply rule that it is expunged but I am not going to tear it out of the record. None of it will be actually expunged, and if the
2042 Master is wrong either way you will have the benefit of it.

The further taking of depositions in this cause was then adjourned until 9 o'clock A. M., July 13th, 1903.

2043 The taking of depositions on behalf of the defendant-, Mayor & Aldermen of the City of Knoxville, was resumed pursuant to adjournment, before the Special Master, at the Federal Court Room, Knoxville, Tennessee, on this August 13th, 1903, at nine o'clock A. M., in the presence of counsel for both parties.

M. F. ROURKE—the next witness, being first duly sworn, deposed as follows:

Examination by Gen. G. W. PICKLE:

Q. What is your age, residence and your occupation?

A. I live at #616 Deery Street, Knoxville, Tennessee. I am fifty-six years old; and I follow the Plumbing business, and Steam Heating—do nearly everything pertaining to pipe work.

Q. How long have you been engaged in the Plumbing business, and by that I mean, conducting an independent establishment and carrying on that business in the city of Knoxville, Tennessee?

A. Pretty nearly twenty-six years. Twenty five years past, I will say.

Q. And were you during the period when the Water-works were originally built and constructed in Knoxville?

A. Yes sir.

Q. And who superintended the construction of the Water-works?

A. Mr. Lowry.

Q. Mr. F. M. Lowry?

A. Yes sir, I think so. I Couldn't recollect what his initials were, but it was Lowry.

Q. Who was the engineer that represented the Water Company during that time, during that period of original construc-

2044 tion?

A. Mr. Fred Fuller.

Q. Where was your establishment during that time with reference to the office of the Water Company in which Mr. Lowry stayed?

A. At that time I was under the Opera-house. They occupied the building where I am now for the first year, I think.

Q. How far apart were you?

A. Just from the Opera-house, about, I should think, two hundred feet.

Q. State whether or not you saw much or little of Mr. Lowry during that time—during the time that the work of construction was going on?

A. Yes sir—I saw him every day—at different times.

Q. What was his condition as regards sobriety during that time?

A. My recollection is he was a man who drank a good deal.

Q. To what extent would he drink during that period—while the work of construction was going on? Did he get drunk?

A. Yes sir, occasionally he got so drunk he could not attend to things, but not often in that condition, that is, so that he couldn't look after matters, but still he drank constantly.

Q. How long would he be drunk to your knowledge at a time?

Mr CALDWELL: We object, because it is immaterial as to how long he was drunk, so far as this record is concerned.

COMMISSIONER: I sustain your objection.

Mr. PICKLE: I am enquiring with reference to the

2045 time during which he was superintendent of the construction of the Water-works.

COMMISSIONER: I think that you have proven once or twice before that he was a drinking man, and it is not contested.

Mr. PICKLE: I want to show that for as much as two weeks at a time he was incapacitated for work.

WITNESS: I couldn't say under oath that he was for that long.

Q. Well, how long?

A. I have missed him a day.

Mr. CALDWELL: I object because that is immaterial. If the stenographer got it down after my first objection I think it should be erased.

COMMISSIONER: I do not see any objection to having the testimony in there. We have got it and no issues will be made on it.

We have it by other witnesses that he was a hard drinking, dissipated man.

Mr. PICKLE: Now, as to Mr. Fuller, what age man was he?

A. I couldn't say. He was a young man, that is, I think he had just got through his course at the University, but I could not say anything definite along that line. He was young though.

Q. Mr. Rourke, had you, or have you had during the period from say 1882, up to the present time, experience in putting in domestic services, connecting the water company with consumers, and if so to what extent?

A. Do you mean have we done that part of the business?

2046 Q. Have you had experience in doing that sort of work?

A. Oh yes, street work, I have had experience with it. I have had experience with what we call street work.

Q. Have you done much or little of that sort of work?

A. Well, for the first few years after the water-works was established I done a good deal of it—that is at least enough to be at it all of the time for the first two or three or four years, to have two or three men at that particular line of work all the time.

Q. That was, you mean, for the first few years after the installation of the water plant?

A. Yes sir—I couldn't say for just how long.

Q. Is that kind of work open for the plumbers now, or is it done exclusively by the water company?

A. The street work is done exclusively by the water company now.

Q. And not let out on competition, to bidders?

A. No sir.

Q. Mr. Rourke, what is the fair cost of the construction, and I mean the average cost of the construction or putting in of services of the domestic size and for domestic use on the streets of Knoxville—taking the average of the streets, and you know what the domestic size is?

A. Well, at the time we were putting them in, that is when all the plumbers in town were putting them in, generally about six dollars. We are not in that business now.

Q. And why are you not in that business now?

A. Because the water company does it all itself.

Q. State whether or not the six dollars for which these services were put in by the plumbers included such profit as the plumber would get out of that sort of work?

A. Yes sir, we worked for a profit—that was the aim.

2047 Q. Now Mr. Rourke, what width of ditches are required, and ordinarily used, for laying cast iron mains of the water company in the streets of the city? In the first place, what width is required say, for twelve inch pipe—diameter?

A. Well a twenty four inch ditch is about right for twelve inch pipe—I mean either six, four and twelve. Of course, generally speaking, that is left to the foreman, or whoever has charge of the ditch.

Q. State whether or not a two foot ditch is sufficient?

A. Yes sir, it is sufficient for it.

Q. Now as to the pipe of the larger size, say from twelve to twenty *feet*, what width is required and is customary?

A. I would have to have thirty inch ditch for that.

Q. At what depth is the main pipe laid in Knoxville?

A. They have all got two and one-half feet covering on them.

COMMISSIONER: A twelve inch pipe—from the bottom of the ditch—would be 3½ feet deep?

A. Yes sir, I think that is it.

Mr. PICKLE: Mr. Rourke, what is the fair cost of restoring macadam, as it has been done in Knoxville, using the old macadam so far as it is available for that purpose, per lineal foot, over the two or two and one-half feet ditches that have been used for laying cast iron mains?

A. I would have to apply that to our sewer ditches, because we have not been doing that strictly like you describe it, but a yard of macadam will do about twenty lineal feet of our sewer ditches—that is about the same width—that could be put in that shape—that is what we generally get.

2048 Q. As it is done in Knoxville what would be a fair price per lineal foot for restoring the macadam, using the old macadam, in so far as you can use it?

A. I have never hardly put it that way but I should think about 2½ cents or so would be enough.

Q. I will ask you Mr. Rourke to state whether or not as it is done in Knoxville a yard of macadam will restore more than twenty feet—as it is done usually?

A. Yes sir, it will, the way we all have been doing it. Of course the law has not been strictly enforced. It takes, to comply with the law, six inches of new macadam, but they have not been exacting about that, and we have not been particular.

Mr. CALDWELL: We object to the answer in so far as it undertakes to state the methods others have been pursuing, without the witness having qualified himself as to whether he knows what the water company does.

COMMISSIONER: I will over-rule your objection because you would clearly have the right to set it up in cross examination: whether he knows anything about it or not.

Mr. PICKLE: Mr. Rourke, the same ordinances apply to putting in the sewers as to the putting in of the water pipe, do they not, in Knoxville, and as to the restoration of the street?

Mr. CALDWELL: We object to anything about the ordinances.

COMMISSIONER: Your objection is sustained.

2049 Mr. PICKLE: In your observation, Mr. Rourke, of the method of the Water Company—I mean beginning back at the original construction and coming on up——

COMMISSIONER: You might get that right—first ask him if he knows their method of doing it.

Mr. PICKLE: Have you observed or not the method of restoring the macadam practiced by the Water company from time to time, from its original construction up to say the present time?

A. I have not paid any attention to what they do since the time they took their work in their own hands.

Q. Do you know the way it was done before that time?

A. Before that time I did a great deal of street work for both myself and for the water company. We were rather indifferent about putting it back. We fixed them up and used as much of the old as possible, but we didn't comply with that ordinance.

Q. Did you do the water-works work during several years?

A. Some little of their street work.

Q. Well, as done during that period, when you observed it, what do you think would be a fair price per lineal foot for restoring macadam?

A. Well, it is a hard thing to tell. I don't know that I could tell it in that way—that has been sixteen or seventeen years ago. I know we used all of the whole material that it was possible to use.

Q. Well, was it worth as much as 2½ cents per lineal foot?

A. Generally speaking it was yes—covering the space of a year it was.

Q. Now Mr. Rourke, have you in the course of your business, and the prosecution of your business in Knoxville, done or had done considerable ditching in the streets and on the lots?

2050 A. Oh yes, I have followed the business all of the time.

Q. What per cent., that is how much out of one hundred feet, does the rock excavation average in trenches in Knoxville, taking it altogether?

A. Taking it as a whole it would not hardly run anything at all. One per cent. would be too much for it.

Q. Then what would be about right for it?

A. Of course ½ of one per cent. is one-half of that, but it don't look to me like from my experience that it would reach one-half of one per cent., the whole territory of Knoxville.

Q. Is there any man in Knoxville, Mr. Rourke, who has had more experience than you as a plumber? Who has done more business than you have as a plumber?

A. No. I am the oldest, and I suppose experience comes with age.

Q. State whether or not you have been engaged in an active business during the time you have been in business here and still are?

A. Yes sir, every day.

Q. Now what is such excavation as rock excavation in ditches of 2½ to 3 feet wide worth per cubic yard, and what can it be done for, and what is the usual price for such excavation?

A. Well, where it is in small ditches, and don't measure very much it is worth $1.25, and where it is larger, where the excavation is larger it could be done for in some years past, for $1.00. It has been done for that but it could not now because labor is higher now.

Q. Mr. Rourke what was the price of cast iron pipe at the date of the original construction of these water works here, and

2051 from what source did you learn the prices?

A. I do not think I could answer that positively at all. My

recollection is, and it is simply a recollection of only hearing the matter discussed, that is in talking about such matters with Mr. Lowry and those people who were first connected with it—Mr. Cook and Mr. McKinney, that it was $22. per ton. Still I cannot swear to that.

Q. Is that your recollection?

A. Yes, but I couldn't swear to that.

Q. From whom did you get that information?

A. Just in listening to them discuss the matter. I had something to do with them nearly every day.

Q. Who was Mr. Cook?

A. He was the first president of the water company I think.

Q. He was at that time president of the water company?

A. Yes sir.

Q. And the Mr. Lowry you speak of was the man who had control of the business?

A. Yes sir, of the outside, but I do not want to be put on oath on that—I give simply my recollection of the matter.

COMMISSIONER: Cook was the promoter, or was in charge of the company anyhow?

WITNESS: He was the president I think.

Mr. PICKLE: Have you ever put in any meters Mr. Rourke?

A. Yes sir, I have put in a few private meters.

Q. Mr. Rourke what would be your estimate of the fair cost of putting in a one-half or a five-eighth inch meter, including the box, during the years running from 1882 up to two years ago, 1901?

A. Well, do you mean to put in a meter like the water
2052 company do it now? You could put in a meter under any kind of a specification, you might say—but away back in—well, perhaps we will say, previous to the last seven eight or ten years, then they were put in just at random, not much expense or not much boxing put about them, and consequently it was done very cheaply, what were put in.

Q. About what would be the cost of putting in a meter under that system including the boxing and everything?

A. Well, you mean wooden boxes—we had some those times with wooden covers on them. The iron covering was introduced, I think, when Mr. Wood took charge of the works; but previous to that time we put them in in the most simple and cheap way. The first meters I don't suppose they cost over, to set the material and put it in position, in that kind of a cheap wooden box, and wooden cover, that it cost more than $3.00. That didn't include the meter. What I mean is the setting of the meter, the wooden box with it. That was done in the simplest and most economical way. There was no cast iron top to it like there is now.

Q. That was prior to 1891?

A. It was during Mr. Martine's superintendency—I did considerable of the street work.

Q. And previous to his time?

A. Yes sir. But the way they set the meter now is an entirely different way, a better way and a more expensive way, and we have cement pavements to cut open and it is consequently a different job.

Q. To what extent were cement pavements in use before 1901?
A. None at all.
Q. Well, in 1901?
A. Yes, some before that time but not to any great extent where meters were put in.

2053 Cross-examination by Mr. CALDWELL:

Q. I understand Mr. Rourke that for the first six or seven years after the water company went into operation that you did a good deal of work on the streets?
A. Yes sir.
Q. You put in a number of domestic services?
A. Yes sir, a great deal more than half of what went in in those times.
Q. You were asked the price of the domestic size of services—what do you call a domestic size?
A. Three-quarter inch pipe, almost invariably.
Q. And that is the same kind of pipe that runs into these Gay street business houses, is it?
A. Yes sir.
Q. Did you figure on galvanized pipe or black pipe?
A. The first pipe which was used was all black pipe.
Q. And the putting in of black pipe services you think was worth six dollars?
A. Yes sir, the first pipe put in were nearly all black pipe and was six dollars.
Q. Now how about galvanized pipe, is that worth more than black pipe?
A. Yes sir, about one cent a foot more than black pipe. I think after Mr. Martine's superintendency they commenced *to* using galvanized pipe.
Q. And you say that would be worth about a cent a foot more than the black pipe?
A. Yes sir, about that.
Q. And therefore the price ought to be increased where galvanized pipe is used.
A. It was not increased—it was continued at six dollars—about.
Q. And when did you quit putting these in?
2054 A. I think it was—I believe that Mr. Wood stopped us.
Q. Do you know what year it was in?
A. No sir, without seeing what time he was superintendent—after he had been there a year or so as superintendent.
Q. Was it December 31st, 1891?
A. I couldn't say that was the date.
Q. It was about that time was it?
A. Yes, it is back that far. Yes, it is that far back.
Q. And since that time the company has put in its own services
A. Yes sir—all street work.
Q. Was the $6.00 the charge you made to private consumers for doing that work?
A. Yes sir, generally speaking it was $6.00 sometimes it would

be more—if there was any question about rock it would be more. If put in a large connection it would be more.

Q. Then the price on the three quarter inch pipe ranged from $6. to $8.?

A. Yes sir.

Q. Now I want to ask you about the cost of certain items here: What is the cost of a three-quarter inch corporation cock?

A. Do you mean corporation cock alone without anything more?

Q. Yes, what does one cost?

A. Of course that is a matter hard to carry in One's head but I should think about sixty-five cents or in that neighborhood—$8. a dozen, or something like that.

Q. What is the cost of a three-quarter inch lead "goose-neck" made up complete, connecting the corporation cock with the pipe?

A. That is just the lead connection?

Q. Yes, made up complete?

A. It would be worth about seventy-five cents, including
2055 the labor on it. I should think seventy-five cents—that is a matter of weighing the lead and so on—I am getting at it just as near as I can.

Q. Now what is the cost of a three-quarter inch stop and waste cock?

A. They are about $6. a dozen.

COMMISSIONER: Do you mean the one for the curb?

WITNESS: Yes sir.

Mr. CALDWELL: What is the cost of a stop cock box?

A. We had ours made in Knoxville at the time—I don't know what the price of boxes is that they use now—we had a cheaper box. They cost, I think, about fifty cents apiece.

Q. What was the length of those you had made?

A. Three feet I believe.

Q. Do you know the size of the ones the water company use?

A. Now?

Q. Yes?

A. No, I know that they are spiral boxes, I don't know the cost.

Q. About how much would you say one of those were worth?

A. I couldn't say.

Q. Aren't they worth from seventy to seventy five cents?

A. Yes, there is a patent on them, and they are necessarily more expense but I have lost all interest in that street work for the last ten or twelve years and do not pay any attention to it.

Q. What is the cost of the stop and waste that is put on the taker's premises?

A. Now?

Q. Yes?

A. I don't know that. I would say a stop and waste in a
2056 box would be worth $1.50. I am not definite about that. I am just looking at the construction of it.

Q. That is to say the stop and waste and stop and waste box and rod would be $1.50?

A. Yes sir, I would say that would cover it. I am not buying those things, and of course I don't know.

Q. Say twenty five feet of three quarter inch galvanized pipe is used—how much would that be worth?

A. $1.25. It might be a little more or a little less than —. I put it pretty close to $1.25.

Q. Now tak- it on the basis of twenty-five foot services—how much labor would be required, and what would it be worth, I mean, to make the tap and everything else?

A. That is worth $1.50 itself—and to restore the street like it was.

Q. Now about replacing the macadam—how about that?

A. I mean that will finish it up. Finish up the job—twenty-five feet—that is for a day's work—it would take a good man to put in a connection on a thirty foot street.

Q. Do you charge anything for the use of your tools, or do you add anything to the $1.50 for replacing the macadam?

A. No, a man can generally take a thirty foot street and put in a connection in a day.

Q. How about taking up and replacing side walks?

A. That would all come in on a days work on a thirty foot street.

Q. How would it be for a twenty-five foot service?

A. That would take about $1.50 for a 25 foot street, that is including the side-walk.

Q. But I mean a service 25 feet long?

A. I mean a 25 foot service on 30 foot street—25 feet.

2057 Q. How about cases where there is a cinderlithic pavement?

A. When I was in business there was no cinderlithic pavements—when I was in that business—I don't know anything about conditions existing now at all.

Q. If you had to go through a cinderlithic pavement to get to the premises would that add to the cost?

A. Yes sir, add a good deal.

Q. About how much?

A. The pavement and all I suppose it would add $2.00 to it, I should think it would. I am sorter guessing at that, to tear up the pavement and put it back.

Q. Now when these services are constructed in the street this new macadam has to be put back there?

A. Yes, sir, if you comply with the law.

Q. And you do not include that in the $1.50?

A. No sir.

Q. Not the material you bring in?

A. No sir, that $1.50 was simply labor.

Q. And what would that macadam cost?

A. I said awhile ago that a yard of macadam would generally take about —, for each connection in sewer work.

Q. Now on a 25 foot connection?

A. Well say that would give you about 15 feet of street—in that case I suppose it would take half a yard of macadam.

Q. We mean a 25 foot connection?
A. From the curb out—I mean where the macadam goes.
Q. What would half a yard of macadam cost?
A. Sixty five cents.
Q. Do you mean a whole or half yard?
A. Half of a yard.
2058 COMMISSIONER: This pipe goes through the side-walk as I understand?
WITNESS: The side-walk is the property line to the main.
COMMISSIONER: There is one thing I do not think is taken up here. Our connections in the old time, when the plumbers were all doing it, the connection was counted from the curb out—the property owner laid to the curb in your time?
WITNESS: Yes sir, we took contracts covering the whole thing but the connection, as it was called, tapping the main pipe, and putting in the connection took to the curb. The box the water company puts in inside the fence now was not used at all. That was taken up by them subsequently.
Mr. CALDWELL: Do I understand that you got $6. for making the connection from the main to the curb line?
A. That is as far as we went with the original arrangement.
Q. Now then that being the case Mr. Rourke, and these different items that you have given the prices of, beginning with the corporation cock, and coming on down to this point in your deposition, costing the sums that you have stated, is not $8.00 for making one of those connections too low a price?
A. For an inch connection?
Q. For a three-quarter inch connection?
A. Well there was not much in it taking the connection as it is—you know simply the connection—but there was generally something else with it—the entire work inside of the place was
2059 generally in with it, and that value was put on it and kept on it for nine or ten years.
Q. That was sort of a fixed price without regard to cost?
A. Fixed and continued. The plumber looked for his profit to work done inside. There were not at that time very many of the streets macadamized. The labor was considerably cheaper and easily to handle than it has been since. At any rate that price was kept up all of this time.
Q. Well now you have stated what the labor and material cost. What was the fair cost of the plumber in making the actual connection there?
A. Do you mean that lead connection you referred to awhile ago
Q. Making the tap and doing everything necessary to complete the connection?
A. We didn't have any plumber to do it—I trained the laborers to do all that was to do.
Q. Your men were trained for that purpose by you?
A. Yes sir.
COMMISSIONER: You let the laborer tap the main or bore the hole in the main?

WITNESS: I did all of that tapping myself for five or six years—looked after it—stayed out on the work and trained these laborers to use the tap machine until the time it was discontinued. It is nearer a laborer's work as it is a plumber's.

Mr. CALDWELL: The price you got for making these connections, of course, didn't include anything for the taker's stop and waste and box?

A. No, that was not used at all.

Q. But those things are now used by the water company?

A. Yes sir.

Q. Do you know the fact that in constructing these services
2060 now the water company uses all of these various items I have gotten you to give the prices of?

A. Yes sir, I know they use them. They could not otherwise make the connections.

Q. Now as to the quality of the material and appliances used by the water company now—is it superior to what was used for the same purposes when the company was first established?

A. Yes sir, it is heavier stuff—better goods. The weight of it affects the price.

Q. The weight of it, you say increases the price?

A. Yes sir.

Q. Mr. Rourke, is it the custom in lay- twelve inch water mains to make the ditches only twenty four inches wide?

A. Well I have laid water mains myself. It depends altogether on the man who has charge of it, and the character of ground he is working in.

Q. Is not that, if it is ever used, the minimum width?

A. Yes sir, that is as little as it could be, and the bell holes, of course, would be half again as large.

Q. That is to say would have to be three feet?

A. Yes sir, heavy twelve inch have to be three feet excavation.

Q. How long would that extra excavation be for the bells?

A. About three feet square—just to enable a man to work in it.

Q. Twenty four inches being the minimum is it not a fact that in practice the ditches are always wider than that?

A. Well it depends on the ground you are digging—if it is loose ground it is but if it is ground that will stay in good shape it need not be. Everyone has his own way of going at excavating, and I
go at mine my way, and I do not reckon that would suit other
2061 folks. I hardly ever did any excavation in Knoxville like anybody else.

Q. Isn't it a fact that in working in these ditches by the time you get done the work the dirt at the top, especially the macadam is broken off until, even if you start with a twenty four inch ditch, you have at least to replace fully three feet—on the top I mean?

A. Of course if you are digging for a twelve inch pipe, you no doubt have to.

Q. I mean ordinarily?

A. For smaller pipes I don't think so.

Q. But for a twelve inch pipe?

A. Yes, I believe you would have enough to make it three feet finish on top if you have a twenty four inch ditch to begin with. There is hardly ever any account taken of those things, and consequently I can't swear to these things. We do not consider that part of it. A person doing excavating never expects to be asked that kind of a question.

Q. And if there would be that much fall in twenty four inch ditches there would be a proportionately large amount in larger ditches?

A. Yes sir.

Q. Now Mr. Rourke, considering the fact that the water company lays 20 inch pipes, is it a fact that a fair average of the width of its ditches would be three feet in size, taking into consideration the fact that a good deal of its pipe is twenty inch pipe?

A. There is so much four and six inch I don't think it would go that high hardly.

Q. Would that be very far out of the way?

A. That is the total excavation; I do not think it would be that much, but as to restoring macadam I expect it would come
2062 nearer right than anything else.

Q. You do not know the proportions of the various sizes of pipes?

A. No sir, I never had anything to do with the larger sizes at all.

Q. Macadam costs about $1.30 a yard does it?

A. No sir, $1.00 a yard is what we have been paying for it. A dollar a yard delivered; last year or so—$1.10 or $1.25 but previous to that time we had been getting it for $1.00 and have got it at ninety cents.

Q. Do you recall the fact that in its early days the water company frequently had to do over again the work of replacing the macadam?

A. We all have to do that. We are bound for it as long as they want to keep us, to restore any street in good shape as long as they call upon us to do so.

Q. That was frequently done during the time you have mentioned?

A. Yes sir, and done now.

Q. And you have not taken that work of doing it over again into consideration in fixing your price?

A. Yes sir, I have. I do not know whether we paid any attention to that or not in our regular business, but we consider that we are obligated under bond to keep the streets in shape as long as they want to call upon us to do so. We tried to get it limited to a year at one time, but still they sent us word not.

Q. Your estimate of the percentage of rock excavation is merely a guess, as I understand?

A. That is all it is.

Q. You have never kept any account of it?

A. No sir. It is so little I do not consider it hardly within
2063 my reach to give any definite figure on it.

Q. And you would not undertake to say that one or even two per cent. was positively wrong would you?

A. No sir.

Q. Now in reference to this rock excavation: is it a fact that you have always handled rock excavation in your general account of the work you have done and not measured the rock work by itself, separate and apart from the other work?

A. Never kept no account of it no sir.

Q. So that you are hardly prepared then to say what the price or cost of rock excavation is?

A. No I couldn't do that.

Q. And your statement of the cost of cast iron pipe in 1882 and 1883 is a matter of recollection upon information derived, as you think, from Mr. Lowry?

A. Just from hearing them discuss the question. I didn't have anything to do with that part of it. I saw a good deal of them on the streets, and I have heard the matter of prices of pipe discussed by them, at least I think they spoke of it being $21 or $22 per ton.

Q. Your business does not require you to keep up with cast iron pipe for water mains?

A. No sir.

Q. And you don't know what its actual cost was in 1882?

A. No sir I do not.

Q. Would you undertake to deny positively the statement that the cost in 1882 was $35. per ton for cast iron pipe?

A. No, I could not under oath—I could not.

Q. Now you say that in the early days one-half or five-eighth inch meters were used, from 1882 to 1901—is it not a fact that
2064 lately all the old meters have been taken out and new ones put in in their places?

A. I don't know that I know—they have set them all over—put them out to the curb in uniform sort of fashion.

Q. Have not all the old meters been taken out and reset in modern boxes?

A. Yes sir, or put at curb line, but what material they used I don't know. I don't know what they did further than that.

Q. Is it a fact also that a very great majority of the meters in the city have been set since 1901?

A. Yes sir, nearly all. Previous to that time meters were allowed to be put in cellars or anywhere that it was convenient.

Q. Now Mr. Rourke in regard to the ditches that sewer mains are laid in—it is a fact is it not that the water company lays no pipe with less than thirty inches of covering on it?

A. Yes sir, that is the fact—that is the rule.

Q. Now if a twelve inch pipe is laid how deep would that ditch be according to that rule?

A. It would be about four foot excavation to make preparation for everything.

Q. Would be four feet of excavation?

A. Yes sir.

Q. How deep would the excavation have to be for a twenty inch pipe?

A. I suppose it would be four and a half. I never put in any twenty inch pipe and consequently I don't know.

Q. But you say about four and one-half feet?
A. Yes sir, I should think so.
Q. Now as you go down deeper into the ground is it a fact that the liability to strike rock increases?
2065 A. No, I hardly think so in Knoxville. My experience is that rock is apt to bump up at any point—a limestone chunk—and go off—and then you may dig—take the old part of Knoxville between the railroad, river and the two creeks—I have dug nearly every bit of it, and I can't say you meet any more rock by going deeper except in certain localities.
Q. Now the boulders or rocks you find here in this soil usually increase in size or width as you go down into the ground don't they?
A. Yes, when you find them they do.
Q. And consequently the longer your pipe has to run or the deeper down it has to go, I mean, the more rock you would have to encounter?
A. Yes sir, looking at it that way—my experience is as far as I went I had not gone far enough to bring that question up hardly.
Q. Your work has consisted mainly of laying service pipes across the streets?
A. Yes sir.
Q. In running a 20 inch pipe longitudinally along the street four and one-half feet below the ground you would necessarily encounter more rock than in laying a three-fourth inch pipe?
A. Not in any part of Knoxville I have been excavating in. I will just tell you something—it may be a little out of that line—but I have excavated about a mile and a half tributary to this old sewer about thirteen feet in the ground—and I never encountered any rock—this sewer right in front of this building.
Q. And that is where the water company never encountered any?
A. I don't know what they have encountered outside of the
2066 old part of Knoxville.
Q. If the water company has based its estimates upon finding rock anywhere it has not been in these places where you have done most of your work?
A. No sir. I have not had much experience with rock. My experience with rock has been very little.

Re-examination by Mr. PICKLE:

Q. And you have had a long and large experience in excavation in Knoxville have you not, in ditches?
A. Yes sir, all of my life—for twenty five years.
Q. Now you were asked if the old meters have not been reset, and you have stated that they have been reset—when was that done—since 1901?
A. In the last few years they have reset them all—took them from the cellars and other places where they were and put them out next to the curb.
Q. You were asked to assume, in fixing the width of ditches for the laying of mains and restoration of macadam, that there is a

large amount of twenty inch pipe in this water system here—do you know it to be the fact that there is five hundred feet or less?

A. I do not know how much twenty inch pipe. There is twenty inch pipe on Mabry street—or at least now Vine Avenue—but I don't know how much—I don't know how far it comes down Vine street.

Q. Now as to keeping up the macadam after the original construction that is in the nature of repairs and paid for as repairs properly by the mater company?

A. I don't know—I know the plumbers and the people under bond don't get anything extra for it.

Q. And that is not a part of the original construction of it?

2067 A. With us it is.

Q. You do not know about the water company?

A. No sir I don't know they do—Squire Nelson puts them in the same fix that we are.

Q. You were asked to assume that an average of twenty five feet is necessary in cast iron pipe for each sirvice. I will ask you whether or not that much is required on services in the streets of Knoxville, taking them altogether?

A. Do you mean for house or domestic connections?

Q. Yes?

A. The way they do it now it takes it—they include the side walk inside to the fence line—we didn't.

Q. Up to the time that you stopped at the curbing would it have required that much?

A. No sir.

Q. And they stopped at the curbing so long as you were connected with the business?

A. Yes sir.

Q. I will ask you if the remainder of the pipe to the house was charged to and paid for by the property owner?

A. Yes sir.

Q. Just like the pipe inside of the yard?

A. Yes, so much per foot for the balance of it.

Q. You stated that these connections were put in during that period in black pipe, and not in galvanized pipe?

A. The first pipe was black pipe—that was inside of the first six months or a year. The black pipe stopped after the first year I think.

Q. Those services are still in the plant, are they, that were put in at the time?

A. Yes sir, I think some of them are still in.

2068 Q. When did cinderlithic pavements begin in Knoxville or come into vogue or use?

A. I can't tell the time but I know the first job was done was at the Baptist Church, but I don't know when it was done.

Q. I will ask you to state whether or not there has been any great amount of it in territory where the water company had to put down services or pipe after the cinderlithic pavement was put in?

A. Not comparatively—I mean in a comparative sense there have not been many services to go into cinderlithic pavements.

Q. Is it a fact that the water works preceded the cinderlithic pavements in the locality where the cinderlithic pavements were put in?
A. Yes sir, generally, but occasionally have to do it—yet like Gay street—brick pavement, but it don't come up often that I know of.
Q. The brick pavement and the cinderlithic pavement have come up long since the original water works construction, have they?
A. Yes sir.
Q. Mr. Rourke, as being actively engaged in the plumbing business, I will ask you to what extent new houses have been erected within the last two years in Knoxville—whether there has been active improvement in that line during the past two years?
A. Yes, more than there ever was before.

Mr. CALDWELL: We except to that because it is irrelevant and immaterial.

WITNESS: Fifty per cent. more than there ever was.

2069 COMMISSIONER: The exception is over-ruled.

Mr. CALDWELL: The plaintiff further excepts to the answer as containing an off-hand estimate, undertaking to state the exact percentage of houses that have been built in the city within the period indicated.

COMMISSIONER: The answer may stand as given, but the master does not think the percentage is entitled to very much weight because too problematic.

By COMMISSIONER:

Q. You say fifty per cent.—you mean that within the last two years, in your opinion, there is fifty per cent. more building going on in Knoxville than at any previous period of two years in your recollection?

WITNESS: Yes sir, within the last two years than in any previous two years within my recollection.

Mr. CALDWELL: We except to the answer because it applies to a period not legitimately covered by this inquiry.

COMMISSIONER: The objection is over-ruled.

Mr. CALDWELL: We except to the ruling of the Master.

Mr. PICKLE: Mr. Rourke, do you know R. D. Wood & Co. of Philadelphia, Pa. by reputation—as a business house?

A. Just the name—I know the name.
Q. In what business were they engaged in 1882?
A. I have never known them to be only in the cast iron pipe and water works pipe business.
Q. Were they reputable and solvent?
A. Yes sir, they appear to be good business people.

Re-examination:

Q. Mr. Rourke you have stated that the property owner
2070 paid for that part of the service connection between the curb and the property line—is it not a fact that the property owner paid you for all the pipe from the main into his premises?

A. Yes sir, but the other so much a foot under another price.

Q. The point is, the property owner paid for it all?

A. Yes sir, except for a very short time after Mr. Martine's superintendency, and he put in some free connections for a little time.

Q. You say that Mr. Martine put in some free connections?

A. Yes sir, once in a while.

Q. How long did he do that?

A. A very short time. He didn't make it general at any time. He never made it general at any time.

Q. But you say that he did put in some free services?

A. Yes sir.

Q. Have you any idea for how long?

A. It only continued for two or three months.

Q. Don't you know the fact that the water company has had to take up and replace a great deal of that black pipe put in for service connections?

A. I don't know—I didn't pay any attention to what they were doing on the streets at all.

Q. You don't dispute the fact then?

A. No sir. The only thing I know of them taking up I see them hauling along the streets some lines of pipe, 2 and 2½ and 3 inch pipe Mr. Martine had me to put down during his first superintendency of the water works.

Q. Isn't it a fact that the number of these domestic services on Gay street has practically doubled since the cinderlithic pavements or side-walks have been put down there?

A. No. I thought we had all of Gay street covered long
2071 ago, but then when the paving district was, you might say, set aside as a paving district, they called upon them to put in new services everywhere—the water company put in new services everywhere previous to the pavements going down.

Q. And they put in services at every twenty five feet?

A. Yes sir.

Q. Whether there was a taker or not?

A. Yes sir, they are in to the curb line.

Q. Under orders of the city?

A. Yes sir.

Q. Whether the property is vacant or not?

A. Of course what contract I had for all that kind of work—when they are used they are paid for.

Q. Are there a good many the water company put in there not in use yet?

A. Yes sir, I made use of one of them myself right recently on Gay street.

Q. Now in cases where these are extended you had to dig up the cinderlithic pavements?

A. Sometimes—I didn't do it always.

Q. The water company has to do it?

A. Yes sir, I have tunnelled it for them—at their permission I tunnelled it half a dozen places on Gay street.

Q. You have to get through by tunnelling or take the pavement up?

A. Yes sir.

Q. Is tunnelling a great deal more expensive than a cut?

A. Yes sir, it is except the pavement—it is not as expensive as the pavement. You can tunnel ten feet in red clay for $1.00.

Q. You say that the first cinderlithic pavement was laid
2072 in front of the First Baptist Church?

A. Yes sir that is my recollection.

Q. That has been built about twenty years, has it?

A. They were both (church and pavement) built the same year. The pavement went on the same year. The first cinderlithic pavement was put down on Clinch street, right across the bridge. Harvey Stephenson built it, and it got in the way of the railroad. That has been twenty years, and then after that was the Baptist Church.

Q. Was the Baptist Church built the year after the Water Company went into operation?

A. I think it was later than that—I think a couple of years after that. I do not know that positively but I put in the connection as soon as the church was built, and I think the water company had been in operation two or three years, but I don't state that positively I don't carry the dates.

Re-examination:

Q. It was a good many years before much cinderlithic pavement was put down in Knoxville——

A. Yes sir.

Mr. CALDWELL: We object to counsel leading the witness.

Q. By the way Mr. Rourke you stated that you laid some of that black iron pipe under Mr. Martine's administration. Where did you lay that pipe—on what streets?

A. Well, I laid some for him and some for private people that subscribed. The water company could not make extensions and I laid it—I laid pipe across from the foot of—perhaps the
2073 longest run—from High and Union streets up through Col. Thornburg's lot, and on out Highland Avenue. That supplied all of that territory. It was a two inch pipe, and supplied all of that territory up there for a good many years. That was a long run. Of course other lines of pipe were put in at different places but that is the longest run that I call to mind.

Q. Well, what other cast iron pipe was put in under Mr. Martine?

WITNESS: Wro-ght iron pipe?

Mr. PICKLE: Yes.

WITNESS: Well, we put in wrought iron pipe in East Knoxville over I think on Henderson street. I don't know that it is Henderson street either—it is a street running from Cumberland South—I don't know what street it is—well, in those new territories that were being brought in all of the time—new existence of streets—there was a great deal of that pipe put in temporarily, to give people water in the cheapest and quickest way it could be done.

Q. About how much was put in during that time?
A. I should say there was all-told may be two miles of that kind of stuff put in.
Q. That was the black, not the galvanized?
A. The black pipe yes sir—with a view of taking it out again in a few years when those streets should be built up.
Q. Well, has it ever been taken out?
A. Yes sir, it all has been taken out.
Q. When?
A. I guess a number of years ago they took it out—as those streets got built up, and occupied, the water company laid mains.

2074 Q. You state that the water company was not able to make extensions, and that private parties contributed?
A. Yes, sir.
Q. What amount was contributed by private parties?
A. All that line on Highland Avenue was paid for by private parties except a portion of it at the far end.
Q. Well, any other contributed or paid for by private parties?
A. Yes, sir, a good deal. Of course I cannot recall those things but there was a good deal of that kind of business being done at that time where this new territory was opened up. That was the biggest thing—Mr. M. L. Ross and Col. Thornburg, and those people along up in that country paid for that pipe.
Q. Do you know how much it cost?
A. I don't know—my recollection is—I don't know that this is right—but my recollection is it was in the neighborhood of $30. apiece for the main line of pipe up that way, but I don't know that that is right, but it makes sort of an impression on my mind it was in — neighborhood of $30. apiece Down Cumberland street, down to Mr. Cowan's old place; that was laid in that manner.
Q. From what point on Cumberland street?
A. Well, that had another sort of an existence you might say—from the Ice Factory—Mr. Cowan and Mr. Woodruff and some more of them West Knoxville people, along in 1879—I built them sort of a little water works—had a pump down at the mouth of Second Creek, and when the water works was finished in 1882, or when it was finished, then a year or so afterwards we detached that pipe and hitched it to the water works system.
Q. It ran from where?

2075 A. From the Ice Factory at the Creek. In fact, it ran from the mouth of Second creek. We had a little water power pumping the water down there. That pipe was then afterwards used to extend and carry the water down Cumberland Avenue.
Q. How much was there of that pipe?
A. I don't know that—over to Mrs. O'Conner's ground, it must have been half a mile.
Q. Was that paid for by private parties entirely?
A. Yes sir. The water company didn't take that pipe up. Mr. O'Conner had most of that pipe taken up.
Q. How long did it remain there?
A. For a great while—I guess from 1879 to perhaps ten years

ago, when they laid the main down there. I couldn't say positively how long; and then it is now in use taking water to the Tennessee Producers' Marble Co.

Q. In use by whom?

A. I don't know. The West Knoxville people when they built their water-works, they had the Tennessee Producers to extend the pipe at their own expense down University Avenue I think, or where the street cars run, and that same pipe is used now. It takes the water to the Tennessee Producers Mill.

Q. Was there any other?

A. There were several others but they are all taken up. I couldn't just recall them right now.

Q. You say that the water company couldn't make extensions—what was the matter?

A. They didn't have the money—they were like the rest of us at that day—they were poor.

Q. You state that at one time Mr. Martine was putting in some free services but that that was not a favor extended to
2076 people generally. To what class of people did he extend it —city officials?

A. No sir. He extended it just to people to become consumers was all.

Q. That was all?

A. Yes sir.

Q. And was a very limited matter?

A. Yes sir.

Recross examination:

Q. Mr. Rourke that Thornburg line of pipe was outside the city when it was constructed?

A. Yes sir.

Q. And it has been taken up since?

A. Yes sir.

Q. And replaced by the water company?

A. Yes sir—pipe in the regular streets now, you know.

Q. Do you know the fact that where private parties have contributed to the cost of laying these pipes, as in that instance, that they have been reimbursed by the water company?

A. I don't know—that is so far back I don't know.

Q. Substantially all of the pipe laid in that way has been taken up and replaced by the water company?

A. Yes sir, so far as I know, all of the pipe that I knew of of that kind to be in existence is to the Tennessee Producers' Marble Company.

Q. And that is outside the corporation line at the present time, is it?

A. I don't know, I can't tell you that. The Traction Company's track is on the street where it is on down the Middlebrook line.

Q. Now tell us exactly where it is so that we may determine whether it is in the corporation or not?

2077 A. It runs along the same road that the Middlebrook car runs on.

Q. Is it on University Avenue, from Asylum street, so called, down to the Tennessee Producers' Marble Company?

A. Yes sir. I don't know that it is strictly in the street all of the way.

Q. Is the corporation line considerable to the east of that?

A. I don't even know that. I don't know where the corporation line is.

Q. Do you know whether the Tennessee Producers' Marble Company Mill is in the corporation?

A. I don't even know that.

Q. Is it a fact that both with regard to material and the quality of work, everything that has been done by the Knoxville Water Company under Mr. Wood and Mr. Kimball since you have been here and since they have been in charge here has been done in a thorough workmanlike and first class manner?

A. Yes sir, it has.

FRANK C. KIMBALL, being recalled for further cross examination, deposed as follows:

Cross-examination by Mr. PICKLE:

Q. When you were last on the stand, or when we were just on the eve of taking a recess in the taking of evidence, you responded to a question of the Special Master, asking whether you were not superintendent of the Knoxville Water Company, and you an-
2078 swered that you were "nominally so." I will ask you what you meant by that statement, that you were "nominally so"?

A. Whatever that word might imply.

Q. Mr. Kimball, how many fire hydrants were there connected with the plant of the Knoxville Water Company, and in use on 31st of March 1901?

A. That is all in my former testimony, and I can look it up and read it over, if counsel or the master should desire.

Q. I will ask you to examine a letter addressed by you on September 29th 1900, to S. B. Boyd, Chief of the Fire Department, which enclosed a statement of the number and location of each fire hydrant then in use in the city of Knoxville; and also a letter re-enclosing that statement, as corrected by yourself, dated May 8th, 1902, and state whether or not the list thus furnished by you to the Fire Chief on 29th of September 1900, and corrected and re-enclosed to him May 8th 1902, is a correct statement of all the fire hydrants in use at and between those dates in the City of Knoxville.

Mr. CALDWELL: Plaintiff excepts to the question in so far as it calls for facts or conditions existing subsequent to March 31st 1901.

COMMISSIONER: I will over-rule the exception.

Mr. CALDWELL: We except to your Honor's ruling.

WITNESS: So far as this list is concerned it was furnished by me in its original form and certain pencil notes are also in my handwrit-

ing but certain interlineations with red ink which however
2079 seem to be only changes in names of streets, as they were changed by the City Council, were not made by me, but otherwise it appears to be correct.

Q. Are the number of fire hydrants correctly stated in that list?

A. While this list was drawn off in reply to Mr. Boyd's letter, presumably with accuracy, without a careful comparison I should not want to definitely answer that question but the presumption is that it is correct.

Q. How many fire hydrants on that list?

A. This list gives a total of two hundred forty seven hydrants.

Q. That was the number that you reported in your letter of September 29th 1900, and which you re-affirmed in your letter of May 1902, as existing at those dates and between those dates, is it not?

A. It is the number existing at date of letter in May 1902, and between that date and the date of the first letter one added in pencil or red ink on there, I think is the only addition.

Q. Now you are paid for two or three fire hydrants in West Knoxville that are not in at all are you not Mr. Kimball?

A. No, as I understand it we are paid in accordance with the contract.

Q. How many are you paid for?

A. We are paid, as I understand it, in West Knoxville at the rate of $2000. per year for such hydrant service—as the hydrants were ordered on certain pipes laid under the contract with the Lonsdale-Beaumont Water Company, and the number of those hydrants as they existed at the date of the last letter, May 8th 1902, was forty seven.

Q. Well, those are all of the hydrants that are attached to your plant in the city of Knoxville—247?

A. They are all that are attached to our plant that the city
2080 has anything to do with the order and placing or paying for.

Q. Well, the city pays you for two hundred and fifty don't it?

A. Not to my knowledge.

Q. Well, what sum do they pay you on hydrants?

A. They pay us for 151 hydrants in the old city.

Q. I am asking what do they pay you—how much?

A. That has already been testified to in my former examination, which I can look up and repeat, if required.

Q. At $45?

A. We get $45. for some and we get $50. for others and have another lot, as previously testified to that we get a lump sum for.

Q. And you don't remember what that sum is?

A. That lump sum is $2000. The total amount has already been given, but I can look it up, if necessary, and repeat it, or I can make a calculation and repeat it, if required.

Q. Now Mr. Kimball, you have stated that you assisted in making up the construction account testified to and made part of the deposition of William Wheeler, and also testified to by yourself. Now under the head of "Additions" during the fifteen months ending

March 31st 1893, beginning on page 36, I find that you include in that account, on page 37 of William Wheeler's deposition, certain quantities of pipe by the foot—giving weights etc. I want to ask you from what source you and Mr. Wheeler obtained the specific information as to the number of feet of pipe and weight, upon which you made that estimate and calculation?

A. The additions to pipe made during fifteen months ending March 31, 1893 were all made and laid under my own per-
2081 sonal supervision, and the weights and lengths were found and measured either by myself personally, or through my then assistants, acting under my direction.

Q. It was laid in between 1891 and 1893, as stated?

A. It was the pipe that was laid between January 1st, 1892 and March 31st 1893.

Q. Your estimate was made in Boston during the year 1901?

A. It was made in Boston during the year 1902.

Q. What I want to know is from what source did you obtain this specific information—these specific amounts as to feet and weight of pipe, etc.?

A. From the Construction Record Book of the Company, showing all sizes of pipe etc. laid at various dates.

Q. Has the water company a book showing this pipe for this particular year—if so, will you produce it and show the page upon which it may be found?

A. They have such a book, which has been in court, and which has been examined by the city's expert, and is now at the office of the water company.

Q. Will it show, on any page of it, this bill of pipe, as you have stated it?

A. It will, on one or more books, I cannot say as to its being on one book.

Q. On page- 40 and 41 of William Wheeler's deposition under the head of "Additions" during the year ending March 31st 1894, I find another charge for cast iron pipe and some wrought iron pipe laid during that year. I will ask you if you can state from what source you obtained the data for making that estimate?

A. The same answer exactly will apply to this question as
2082 did to the previous question so far as pipe laid during that period is concerned.

Q. On pages 47 & 48, under the head "Additions" made for the year ending March 31st, 1895, I find another list of pipe—from what source did you get the data or information for that answer?

A. The same answer applies to this question so far as pipe is concerned.

Q. And does the same answer apply to the pipe for all of the subsequent years?

A. Not wholly.

Q. Well, what exception is there to its application to other years?

A. During the time from April 1st 1895 to sometime in July of that year I was not in town. The work was however progressing in charge of my assistants, to whom I had given instructions before

leaving, who reported to me on my return, and the pipe laid within that period, as reported on the extension returns of the company did not personally come under my eye but the lists were made up from these extension reports as verified by me through my assistants. About from the middle of September 1895 up to the 11th of January 1899, the pipe as laid was under the direct charge of the then superintendent of the company, Mr. Hague, who reported all lengths, sizes, etc. in detail upon the extension returns of the company to the Boston office, where they came under my charge and were properly examined and entered. Since that date, January 11th 1899, that has all been done under my supervision.

2083 Q. Now Mr. Kimball, when was this book that contains this account of pipe made up so far as the years of 1892, 1893, 1894 and 1895, are concerned?

A. That is a hard question to answer, as to just exactly the date the entries were made in this book. On blank sheets, ruled exactly as this book, the data was entered at various times, the first of it in the latter part of 1892 or the early part of 1893, as I recall, and carried forward on these sheets from time to time until they were finally entered in this book, and my recollection is, although it is vague, that the first entries in this book itself were in the latter part of 1895.

Q. Well now, who made those entries?

A. They were made by myself and are in my handwriting.

Q. All of them?

A. All of the entries in this book, I think without exception, up to page 234.

Q. Well, who made out the sheets from which you made the entries in the book?

A. Made by myself.

Q. And when?

A. At the dates I have just mentioned, as near as I can remember, including each year's business brought down year by year from those dates forward.

Q. Where are those sheets?

A. I don't know whether they are in existence or not. I think some of them might be found in existence. I doubt very much whether there are any here or not because after those sheets were entered and compared and the certificate of comparison entered on this book by the parties who compared them with the original records, no further use was desired of them, and I should not be surprised if they were destroyed, although as to the exact state of affairs regarding that I cannot say.

2084

Q. How did they happen to be sent to Boston? Did you make these entries in Boston?

A. Up to 1899 they were all made at Boston. I will qualify that, however, by saying that the most of them were made in Boston. Since 1899 this book was entered up down here and my recollection is that the sheets were then sent to Boston with the Supervising Engineer's record which is kept there, and which so far as this book is concerned he has a duplicate of.

Q. There are duplicates of these books in the two offices, are there not?

A. There is this book in the office here, and a duplicate of it in the Supervising Engineer's office in Boston.

Q. And the original sheets from which they were prepared are lost or destroyed?

A. My former answer covers that as well as I can make it.

Q. You had charge of the Construction work in North Knoxville I believe Mr. Kimball?

A. Under Wheeler & Parks' direction I did it.

Q. When you went into North Knoxville you found that the old company, that is the Knoxville Water Company, had laid a good deal of pipe and had 130 or 140 services before Wheeler and Parks acquired that plant?

A. That matter I went over thoroughly in my former examination which I will also get and repeat, if required.

Q. That is the fact, isn't it?

A. I refuse to be confined to figures without looking at the record. There was some pipe there and some services.

2085 Q. Now what arrangement was made between Wheeler & Parks when they organized their company to occupy the North Knoxville territory, with reference to the old pipe and services that already existed over there, and had been laid and put in by the old company?

Mr. CALDWELL: I except to the question because this matter has already been fully testified to by this witness and another witness.

Mr. PICKLE: I do not remember of this witness having been asked anything in reference to this matter.

Mr. CALDWELL: I will withdraw my exception and allow the witness to answer.

WITNESS: The disposition of these pipes and services, as between the two companies, as I understood it, and it is a matter of heresay only, was a matter of contract between Wheeler & Parks and the North Knoxville Water Company, the contents of which contract I am not competent to testify to.

Q. Was it, as you understood, a written contract?

A. So far as I know it was a written contract or agreement of some sort, and still I won't testify positively as to that. It was a matter that did not in any way come under my supervision.

Q. How much did Wheeler & Parks pay, or agree to pay the old water company for the pipe and services that it had in North Knoxville at the time that the North Knoxville plant was acquired?

A. My former answer covers that wherein I state I was not in any way familiar with that deal, nor did it come under my observation.

2086 The COMMISSIONER: You do not know?

WITNESS: That is the short cut to it.

Mr. PICKLE: Can you state how much pipe—you were there on the ground and did the work—how much pipe the old plant had in North Knoxville at the time that Wheeler & Parks invaded and took possession of that territory with the North Knoxville plant?

A. That same question was asked me previously and my former answer still applies.

Q. Do you know how much Mr. Kimball?

A. I cannot state definitely—I will get the record and read it if counsel desires.

Q. If you can ascertain how much there was in North Knoxville at that time I would like for you to do it?

A. I can only reply to that question as I did in my former examination, cross-examination I should say, as shown on pages 45, 46, 47 and 48 of the record, and on page 160 at the bottom and page 161 at the top.

Q. Is there anything on these books to show the quantity of pipe I am inquiring about?

A. I will read that part of the deposition if counsel desire. I cannot answer that question yes or no*t*.

Q. I will ask the stenographer to read you my question: "Can you state how much pipe—you were there on the ground and did the work—can you state how much pipe the old plant had in North Knoxville at the time that Wheeler & Parks invaded and took possession of that territory with the North Knoxville plant?" In other words, when you went there how much pipe was there already when you began the construction there, that the old company had put in in that territory?

2087 A. Without being aware of any invasion of North Knoxville at this time, and assuming the question to be directed to the time Wheeler & Parks entered into a contract with the town of North Knoxville to do certain work, and the results of that work, I am unable to state, in fact, the amount of pipe that there was there at that time, nor do I at present recall that any specific measurements were taken before the work of extension and building of the North Knoxville works progressed, but that after this work was finished, and as of date December 31st 1891, all the pipe in North Knoxville was measured, including the old as well as the new pipe, and that appears of record, and the same remark would apply to the services as well as the main pipe.

Q. Will you please point to the page of the pipe book on which this quantity of pipe in North Knoxville, including the old and the new is to be found?

A. The pipe is set out in detail in the construction record book of the Knoxville Water Co. on pages 38 and 40, so far as all "Pipes, valves, and hydrants set and laid to December 31st 1891, including old pipe left in" is concerned.

Q. On what streets Mr. Kimball was the old pipe that existed when you went there?

A. That will be a matter of recollection, and in general I can simply say that it was on Broad street, possibly as far North as Wells—perhaps one hundred feet further.

Q. Just give the size of the pipe as you go along?

A. And this was partly eight inch and partly six inch. As my recollection serves me this was about all the cast iron pipe in North Knoxville, and all of the cast iron pipe that enters into this record.

Q. I want the facts?

2088 A. I have answered from my recollection.

Q. How much was there of it—how much six and how much eight inch?

A. I have stated to the best of my ability that in so far as I know it was not measured up—And I would not attempt at this late day to put it in feet.

Q. Well, a mile of it?

A. I should say considerably under a mile—possibly somewhere from one third to one-half or two-thirds, but more definitely than than I cannot state.

Q. And what proportion of it was six inch and what proportion eight inch?

A. I can give no more definite answer to that than I have.

Q. How much wrought iron pipe, and on what streets was it—if you cannot state the quantity then state the streets on which it was laid, and also state the quantity and size as near as you can?

A. Do I undersand you to mean that which was left in, and that was there and taken out?

A. All that was in at that time?

A. That is set out so far as my best recollection of the quantity taken up is concerned, and which the records show in at the time of the contract between Wheeler & Parks and the town of North Knoxville, on pp. 46, 47 and 48 of my depositions. As regards that that was left in, some of which has since been taken up, and possibly a small portion may still be in there on possibly three or four small side streets, but it is too vague in my mind to give any definite statement thereof. One of them is Kenyon street. I think that pipe is still there.

Q. Does not your pipe book show the quantity of wrought iron pipe?

2089 A. It does.

Q. That was in at what date?

A. That included the new pipe as well as the old pipe left in on December 31st, 1891.

Q. Did you put in much wrought iron pipe after that?

A. Very little, if any, and I think this record will substantially show what was in at that time.

Q. That was about all of it so far as wrought iron is concerned?

A. Yes sir, so far as wrought iron is concerned, not however including cast iron.

COMMISSIONER: Did Wheeler & Parks put in any six inch mains?

WITNESS: Yes sir.

Mr. PICKLE: Now on page 35 of William Wheeler's deposition, and under the head of distribution pipes and appurtenances in North Knoxville, laid in 1891,—from what source did you get the data, such as the number of feet and weight of pipe, both cast iron and wrought iron, that is found on that page and accounted for as having been laid in North Knoxville?

A. This last includes all that was laid to and including 1891 in North Knoxville, and so far as the weights go they are the weights of pipe laid under my supervision in the construction of the North

Knoxville Works, such pipes that were found there for the purpose of this analysis being assumed to be of substantially the same weight. So far as measurements go they were all made, including the old and new pipe, either by myself directly or by assistants under my personal supervision.

Q. When did you make the measurements?

2090 A. The measurements were made in the latter part of 1891, or within the first two months of 1892.

Q. Have you a record of those measurements made at that time?

A. The record of those measurements are in the field-note books of Wheeler & Parks, in Wheeler & Parks office, in Boston, Mass.

Q. When were these transferred to the book you call "Construction" or "Pipe" Book?

A. I have already testified to the time when that book was made up and can add nothing further to it.

Q. Mr. Kimball in the estimate of construction for the year ending March 31st 1894, beginning on page 40, I find on page 43 under the head of "Distribution Pipes and Appurtenances in North Knoxville" three items aggregating about 1136 feet of -ast iron pipe, and about 349 of wrought iron pipe, put down in North Knoxville during that year. From what source did you get the data for that charge?

A. It was laid under my personal supervision, and measured up in the same way.

Q. But it was nearly ten years afterwards when you were making the estimate—what did you refresh your memory from?

A. From the construction record books admitted in this case.

Q. Will you show me the item on the construction record book and give the page?

A. It will be found on pp. 44 and 45 of the construction record book of the Knoxville Water Company.

Q. Well, Mr. Kimball, the Knoxville Water Company had extended its pipes and services into the territory occupied by the Lonsdale-Beaumont Water Company before it acquired that prop-

2091 erty, had it not?

A. To some extent yes sir, and those pipes were found there by me when I first came to town in 1891.

Q. To what extent did the old company have pipes and services and meters in the territory occupied by the Lonsdale-Beaumont Water Company prior to the acquisition of that company's property by the Knoxville Water Company?

A. I cannot answer that question at the present time in feet of pipe, or number of services or meters, as it would take a very exhaustive examination of all our books, and a separation of each individual piece of pipe, service and meter from them all to do it.

Q. Could you give an estimate of the amount that you had in that territory the best you can—I do not want to go into an extensive investigation?

A. I cannot state that with any degree of definiteness, and were I to give the number of services that we had over there from recollection I would be obliged to say there might be fifty and there might

be one hundred, and I would not deny any statement within one hundred per cent. of either of those figures; and I could state nothing more definite as regards the pipes or the meters because that question is one that has never been of importance enough to us to consider.

Q. Could you ascertain those things and put them in the record Mr. Kimball?

A. By labor of two or three weeks' time, in separating all the services on our local books, pipe accounts etc. it could be done.

Q. Now Mr. Kimball, on page 86 of William Wheeler's deposition, under the head of "Additions" during the year ending March
2092 31st 1900, I find what purports to be a list of the pipe, number of feet, inches, weight etc. that you estimated as entering into and having been acquired from the Lonsdale-Beaumont Water Company plant. I will ask you from what source did you get the figures as to feet and size of pipe etc., upon which this estimate was made?

A. After we had acquired this plant and under my personal direction a survey of the pipes were made by means of pick and shovel, digging them up at intersections and tracing them through from one end to the other, from which excavations the sizes of the pipes were noted and measurements along the surface of the ground taken to determine the lengths.

Q. Have you the notes of that survey?

A. I think they are in the office.

Q. Will they show on what streets the pipe was found?

A. That note book not only will show it but this construction record will show it.

Q. I find this statement on the face of this account on page 86: "All but about 1000 is original" What does that signify Mr. Kimball?

A. It signifies that from the best information at our disposal all of the pipe included in those two items bracketed but about 1000 feet of it was the pipe laid when the works were originally built by the Lonsdale-Beaumont Water Company.

Q. You had no books or records of that company from which to ascertain the amounts of pipe, weights etc., did you?

A. We had no book showing it. We did, as I have previously testified, have a map and schedule of pipe, as laid originally, prepared by an engineer who measured it up for the city of West
2093 Knoxville after it was laid.

Q. Who was that engineer?

A. J. C. Wright.

Q. Has that map been put in evidence in this case?

A. I think it is one of the plans filed with my deposition as an exhibit in this case amongst the hundred or more others so filed.

Q. If it is not you will put it in?

A. If it is not it is at the disposal of the city.

Q. Well now, did you measure up all the pipe that was within the West Knoxville plant when you made this measurement, and from which you took this statement, and included that which had

already been put in by the old company as well as that which you acquired from the Lonsdale-Beaumont Co.?

A. We did so far as it related to distribution pipes and mains and includes, to the best of my knowledge and ability for doing such work, all the cast iron and wrought iron pipes connected with the old Lonsdale-Beaumont Water Company plant at that time.

Q. Now could you give us without too much trouble an estimate of the quantity of pipe and the number of services and meters that the old water company had within the Lonsdale Beaumont territory at the time you acquired that property?

A. My former answer is the best I can do on that subject.

Q. Mr. Elbert Wheeler, is present, is he not?

A. Yes sir.

Mr. PICKLE: I give notice to Mr. Elbert Wheeler and Mr. F. C. Kimball, officers of the Knoxville Water Company to produce and file the contract of August 8th 1902, between Wheeler & Parks and the Knoxville Water Company, referred to in section 1 of the
2094 contract between the same parties, dated the 17th day of November, 1893.

Mr. PICKLE: Mr. Kimball, how many six inch meters have you connected with the plant in Knoxville?

A. The record shows what there was at sundry times. I cannot recall from memory.

Q. If you have given them, then please give their location—they are very few in number?

A. I cannot do it from memory sir.

Q. There are very few of them, are there not?

A. The record will show. I can look it up.

Q. I will ask you the general question and you can answer it: Show the location of the four and six inch meters that you have in the Knoxville plant, and you can get at it from your books, at 31st of March 1901?

A. The following shows the location of all 4-inch and 6-inch meters actually in use in the plant of the Knoxville Water Company, March 31st 1901.

Owned by the Company.

Two 4-inch meters at Knoxville Woolen Mills, Service #867 on Dale Avenue.

Between March 31 1901 and Sept. 30 1902 three 6-inch and four 4-inch meters were set in addition to the above.

Mr. PICKLE: I will also ask you Mr. Kimball to put in the form of contract between the Water Company and the consumers that has been in use by this company since 1895?

A. By which I presume you mean the application blank, as contained in our bound book at the office which the consumers sign when they apply for water?

Q. And that application contains whatever contract exists between the consumer and the Water Company?

2095 A. So far as the first putting in of the service it does; and I herewith file said blank.

Q. Now you have qualified your answer before given by saying that that application is the contract so far as the original construction is concerned—do you have any other form of contract—did you have any other form of contract at any time to supply water to consumers—if so file a copy of it?

A. We have what is known as a "meter contract" which is signed when parties desire us to put in a meter on their premises, and I file a copy thereof herewith, this being in two forms: one to cover West Knoxville, or the old Lonsdale Beaumont terrritory, and the other to cover the remainder of the city.

Q. Mr. Kimball, it has been more than once stated in this record that there is a special contract with the Southern Railway Company for furnishing it water—have you that contract in the office?

A. We have not.

Q. Where is it?

A. I should have to refer you to the treasurer for that—I presume it is in his possession, and probably in his Boston files.

Mr. PICKLE: I hereby give notice to Mr. Elbert Wheeler and Mr. F. C. Kimball, both of whom are present, to produce the special contract between the Knoxville Water Company and the Southern Railway Company, above enquired about.

Q. Have you ever seen that contract?

A. I think not the original, I have a copy of it.

Q. You say you have a copy of it?

2096 A. I have seen a copy of it.

Q. Have you a copy of it in your office?

A. Without replying definitely I think we have.

Q. Well, who collects the rents on that contract?

A. The local office of the Knoxville Water Company.

Q. Well, you then have a copy of the contract to see what you are going to collect?

A. As stated above I have seen it and know the conditions thereof, and have already testified thereto which is in my deposition, and from my knowledge of that contract we collect the rentals, and I think we have a copy at the office.

Q. Is it a copy or a duplicate?

A. It is presumed to be a copy—not having compared it with the original I of course cannot however testify further.

Q. In looking over your books I see that you rebated for sometime the water rent of S. N. Littleton—do you know upon what consideration that was done?

A. No sir.

Q. He was chairman of the Board of Public Works here awhile, was he not?

A. Yes. S. N. Littleton was chairman at one time.

Q. Well, as I understand the books he was during the time of the rebate of his water rents chairman of the Board of Public Works?

A. I couldn't state as to that.

Q. I find some rebates to Mr. Harry Galbraith of the same character—do you know what that is for?

A. No sir, I couldn't state. In addition, I will state that probably fifteen or twenty per cent. of all our vouchers are rebate vouchers, caused by the fact that people pay water rent as they do in
2097 advance and have the service discontinued either in whole or in part, or meter set, which requires the rate to be paid in arrears instead of in advance, and the rebates are always made to customers for the full amount of any service collected for which is not furnished, and without knowing the specific cases or the reasons for them I presume these come under those heads and reasons largely.

Q. Well, if you think of the reason for rebating Mr. Littleton or can find out by looking at the books, I wish you would put the explanation in the record?

Mr. CATES: We object because we can see no reason for his doing anything of that kind. If there was a rebate that fact is enough.

COMMISSIONER: It might not be. I do not suppose it amounts to much but suppose it made a serious difference in the receipts—suppose there was enough *og* it to make a material difference in the receipts?

Mr. CALDWELL: But the amount is not enquired into?

COMMISSIONER: Yet, I cannot tell what the amount is. I will get the amount first, and if the amount is not material I will not compel him to answer I will sustain the exception unless there is some material amount shown.

Commissioner: At this point the counsel for defendant announced that he had no witness ready to go on, and asked a further postponement, which application complainant objected to upon the ground that at the last adjournment it was expressly understood that
2098 by August 11th 1903, the defendant would be ready to proceed continuously to a conclusion. Counsel for defendant denies having stated positively that he would be ready to go on continuously.

This being the positions of counsel the Special Commissioner rules that it is due to complainant that the defendant go on continuously with this proof but complainant having agreed thereto the next day is fixed for Tuesday, the 18th of August 1903, at nine o'clock in the morning; and it is ordered by the Master that defendant's proof be kept up continuously from that time.

The defendant gives notice under this ruling of the Master that it does not agree that it will be ready or able to take proof continuously from said August 18th, 1903.

2099 TUESDAY MORNING, *August 18th*, 1903.

The further taking of depositions was resumed.

CLAUD A. HOOD, next witness called on behalf of defendant, having been first duly sworn, testified as follows:

Examination by Mr. PICKLE:

Q. Mr. Hood give your age, residence and occupation?
A. My age is 31, I live at #851 South Seventh Street, Occupation a contractor.
Q. How long have you resided in the city of Knoxville?
A. Thirty-one years.
Q. Who composed the firm of A. J. Hood and Brother, and when and how long were they in business in the city of Knoxville and what was the kind of business in which they were engaged?
A. For 15 or 20 years and up until about 10 years ago my father had a brother D. L. Hood, he and my father were contracting together especially in stone work. My father's initials were A. J. and his brother's D. L. Hood. They contracted together.
Q. Did they contract under the name of A. J. Hood and brother?
A. Yes sir.
Q. What relation were you to the members of the firm of A. J. Hood and brother?
A. A. J. Hood was my father and D. L. Hood was my uncle.
Q. Was that firm in the contracting business in the city of Knoxville during the period of the original construction of the Knoxville Water Company?
A. What year was that? They built the shaft—sunk the shaft at the side of the river bank and made that little tunnel in under there.
Q. Do you refer to the engine pit and suction tunnel?
A. Yes sir it is the tunnel that runs into the river about
2100 30 or 35 feet—goes out into the river maybe 30 feet. It is a pipe. We called it a tunnel during the time and a ditch into the river.
Q. Then as I understand you the firm of A. J. Hood and Company did the excavation for the engine pit and that tunnel?
A. Yes sir.

Mr. CALDWELL: Your question was to original construction, wasn't it?

Mr. PICKLE: Yes sir.

Q. At any rate A. J. Hood and company did that work?
A. Yes sir.
Q. I will ask you upon what terms or under what contract the work was done Mr. Hood?

Mr. CALDWELL: We except to the question as involving hearsay testimony.

Mr. PICKLE: If he heard the contract and knows what it was, I submit it is proper.

Mr. CALDWELL: I don't understand that he was a member of the firm. Besides he was only 11 years old at the time, as I gather it.

Q. Were you present and working there at the time?

A. I worked there all the while carrying water, and I carried the steel back and forth from the blacksmith shop. We had a little blacksmith shop stuck up in the bluff there.

Q. I will ask you to state whether or not your father and uncle are dead or living?

A. Both of them are dead.

Q. State whether or not you know what the contract was between them and the Water Company under which that excavation was made?

A. I think I know what the contract was.

COMMISSIONER: How do you know it?

2101 A. I will explain the best I know how. I was young at that time, it is true and of course I remember things that happened those days better than some things that happened later, and we were in pretty tight circumstances at that time and for that reason I remember very distinctly that they bid very carefully on that work. Father and ourselves talked it over at the house, and I remember we had just returned from Ooltewah cut-off on the Southern and we were in rather bad circumstances and father bid on the work, and if I remember distinctly all the bids were rejected, if I remember correctly, and they told father that the engineer in charge had made an estimate of about what it would cost to sink this pit and to make that tunnel out into the river, and the people that had bid on it, probably all the bids run a little over that estimate, now that is the way I remember it, and they asked him what he would take to do this work by the day, they to furnish weekly or monthly estimates, I forget which it was, and to furnish all the tools and ammunition and they were to pay for all the ammunition and to pay the blacksmith so much *pay* day to stay there and keep the tools in good repair, and for them to stay there and superintend the work, and I think that is the way my father and uncle did the work—I am not positive—but I think that is the way to the best of my knowledge.

Mr. CALDWELL: Did you get what you know about those matters from your father or uncle and not from hearing or reading the contract?

A. I don't understand you Mr. Caldwell.

Mr. PICKLE: I don't understand that there was any written contract about it.

Mr. CALDWELL: What I want to know of the witness is if he knows this fact from his own personal knowledge, or did he derive this information from his father and uncle; if so, it would be clearly hearsay testimony.

2102 Mr. PICKLE: Why it wouldn't be even then for it is a part of the *res gestæ*.

COMMISSIONER: Answer the question.

Mr. CALDWELL: What I want to know of the witness is if he knows this fact from his own personal knowledge or did he derive this information from his father and uncle?

A. A little of both. My father and uncle talked about it at the

time, and then by being on the work and knowing that the monthly estimates were paid each month or week. I know that was during the Fall that we did it, and the weather was bad and we didn't get in more than half time.

Q. Do you know what the cost of the excavation of that pit and tunnel amounted to?

A. Not exactly. I remember pretty well yes sir, that the engineer's estimate was that that bid in the first place was not to exceed $3,000.00, if I remember correctly, and that our part of the work, or my father and his brother's part of the work saved the Knoxville Water Company something like $1,000.00 or over. In other words the $3,000.00 job come under $2,000.00, the job they had digging the rock pit of the tunnel at the river. That is my recollection about it.

Q. Do you remember at what price per cubic yard that excavation was put at or bid on?

A. No sir I do not. I know I have worked on public works ever since I was born and I think the estimate we made on that work, proposition we made them was $1.10 per cubic yard of stone.

Q. Did that include the pit and tunnel?

A. That was a turnkey job, yes sir. I am not positive that that was the exact figure, but I think it was.

Q. And that bid was rejected and the job was done by your father?

2103 A. Yes sir that is the way I remember it.

Q. Now state whether or not your father, A. J. Hood and his brother were to furnish, or did furnish under that contract the labor, ammunition, &c., for the doing of the work?

A. If I remember it correctly father and my uncle furnished all the tools and superintended the work—they of course bought the ammunition that was necessary to do the job with, and the Knoxville water Company paid for it, and also paid the blacksmith the same as they paid the laborers by the day for the construction of the work.

Q. And that was paid back to your father, was it?

Mr. CALDWELL: We object to that as leading.

Mr. PICKLE: Then we will let it go.

Q. Now Mr. Hood how was that excavation done?

A. You mean in the course of construction?

Q. How was it effected?

A. They first went and blasted off the side of the bank. There was a little flat place there and we started on that and the upper end of it went into the bluff, and we then blasted that off and there were big boulders there, possibly 12 feet large, and we would put a big pole or windlass across there and would put a half a barrel on each end of the rope and would let one down and the other up and that is the way we pulled the mud, stone and stuff out, and threw it off the wheelbarrows over the bank.

Q. The upper part of the excavation, how was that done?

A. It was blasted off. We put big holes in there and would shoot it off.

Q. How far down had you gotten before you had to lift the stone by a windlass?

A. I don't know sir; I think about 10 or 12 feet; something like that; maybe a little more.

Q. Mr. Hood did the firm of A. J. Hood and brother bid
2104 on the excavation of the reservoir?

A. Yes sir.

Q. What was their bid per cubic yard?

Mr. CALDWELL: We object to that unless the witness is qualified to say that he knows what the bid was.

Q. Do you know what their bid was?

A. Yes sir.

COMMISSIONER: If the witness says he knows, I don't know of any better evidence.

Q. Well what was the bid of A. J. Hood and brother per cubic yard for that excavation on the reservoir?

A. Should I state how the specifications read? In other words the proposition was laid before the bidders that there was no rock to be counted in there, that the rock was to be left in the reservoir so long as it didn't come in the way, and we bid on the excavation of the earth, and we bid 14 cents, and Lawson Irwin, a black fellow bid 12½ cents and he got the job.

Cross-examination by Mr. CALDWELL:

Q. Mr. Hood you say you are 31 years of age?

A. Yes sir, soon will be 32.

Q. In what year was this reservoir built?

A. In 1882 I think it was; in 1881 or 1882.

Q. How old were you then?

A. I was 12 or 13 years old.

Q. What year were you born in?

A. In 1872.

Q. You could hardly have been 13 years old in 1882 could you?

A. I was about 12 or 13 years of age. I was big enough to carry water for the hands and steel to the blacksmith.

Q. If you were born in 1872 it is very clear you were 10 years old in 1882, isn't it?

2105 A. Yes sir.

Q. How many older brothers did you have?

A. Two.

Q. You were not a member of that firm in 1882 were you?

A. Oh no sir. I was working for my father and brother and his brother. They all worked together.

Q. Your knowledge of the price at which your father or his firm took that tunnel work is derived almost entirely from conversations that you held with your father, and that your heard?

A. At home, yes sir, in the home circle.

Q. How much of it do you get from any other source?

A. You mean outside of home?

Q. Yes sir?

A. Not a bit, that is in regard to prices and the way we constructed the work, &c., I give it to you as I remember it at home.

Q. And you give it as you got it from your father at home?

A. Yes sir, as near as I can remember. I cannot be exactly positive in every detail for I was young, but as well as I remember it that is the way I understood it.

Mr. CALDWELL: Upon that statement we move the Master to strike out this witnesses' testimony upon that point.

Mr. PICKLE: Did you hear them talk the matter over with the engineer or officers of the Water Company?

A. I heard them upon the works talk the matter over, time after time, yes sir.

Mr. CALDWELL: It dosn't appear that there is anybody living that knows what this arrangement was.

2106 Mr. CALDWELL: Are you- two older brothers dead?

A. Yes sir, Jack and Elisha are both dead, and my father and uncle Dock are dead.

COMMISSIONER: There is no other way of obtaining what happened during that work. These present managers say they have no books of the company, and it is a question of proof who the engineer in charge was. All those men have disappeared and I think we will have to admit the proof even though the witness was only 10 years of age, and I overrule your objection.

Q. What work exactly was it that your father's firm was to do at the Pump Station?

A. Well sir there was a big hole to dig in the ground, possibly 20 or 25 feet in diameter, and it was to be round or as near as it could be blasted off in the earth and to be sunk to the depth I think of about 35 feet and that was to come under my father's proposition, and then there was a tunnel large enough to carry two big pipes out into the river that was to come in under his contract.

Q. You say the bids that were put in, all of them were larger than $3,000.00?

A. No sir I said that the engineer had made an estimate on the work and their bids were not to exceed $3,000.00, if I remember it correctly—that is the way I had it in my head.

Q. Well what were the bids that were put in?

A. I don't remember the amounts; I think they were all rejected from the fact that they were too high, but I don't know that.

Q. Don't you know that as well as you do the other facts?

A. I have forgotten that, but I think our bid was $1.10 per cubic yard for stone work.

Q. Did that $3,000.00 cover the pit and tunnel too?

2107 A. Yes sir one tunnel and sinking the pit.

Q. What were you to bid on the dirt?

A. Fifty cents a yard on mud excavation.

Q. And what in the pit?

A. It was counted solid stone, all the pit because there was nothing in there except just crevices with very little dirt in it.

Q. How much did the next bid above that amount to?

A. I don't remember sir. I just give you $1.10 as our bid and I wouldn't swear exactly that that was the bid, but I think it was.

Q. If you think that $1.10 was the bid, how do you get that information?

A. From other work that we did at the same time, and to the best of my recollection we made those people, was $1.10.

Q. But you don't have any particular recollection of this particular job do you?

A. Yes sir I remember the work.

Q. But you don't have any recollection of the bid on the stone work you had on this job?

A. I think it was $1.10.

Q. Then you have no special recollection of what it was?

A. Nothing but what I have given you.

Q. What time in 1872 were you born?

A. September the 17th.

Q. And what time were you doing this work in 1882?

A. I think we went down there about August; possibly september, and we stayed there, if I remember correctly right about three weeks before Christmas that we got through.

Q. And you were less than 10 years old when the work began?

A. Yes sir somewheres about there. I was big enough to drive a cart and to carry steel.

Q. I wasn't asking you about that. How much did your
2108 father get for superintending that work above cost price?

A. I don't know sir; I couldn't say.

Q. He got something didn't he?

A. Yes sir.

Q. How long did it take him to do it, three months?

A. I think about three months; it was just about half time. The weather was bad all that time.

Q. It was hard work wasn't it?

A. It was pretty hard work.

Q. And you don't know what your father got for superintending it?

A. Not per day, no sir.

Q. How much did he get for the whole—I mean for superintending it?

A. I don't know exactly. I think I know but you will not let me tell what I think. I imagine he got $3.00 a day, he and his brother, which made $6.00 for the two.

Q. Now how many days were you there?

A. I couldn't say.

Q. Give me your best estimate?

A. I would say we were there possibly 35 days during the whole three months we were on the job.

Q. Didn't your father and brother get pay wet or dry for superintending that work?

A. No sir, I know they didn't for if they did it was the only job they ever got pay for that way.

Q. But you don't know it to be a fact?

A. No sir I don't know it to be a positive fact.

Q. Don't you know that your estimate of 35 days is too low?

A. Here is the way I gave it. We went to work there first of August, or somewheres along there—in July or the last of July—and we worked down to possibly three weeks before Christmas, and then there was a little partition left where there was a big
2109 valve that came in and I know that we had to come back the first of February and take that out—there had to be more room taken out in the bank.

Q. You were there say August, September, October, November and two weeks in December?

A. Yes sir not over two weeks.

Q. Say four months, that is 130 days. Now do you mean to say there was so large proportion of that weather bad that you only got to work about one-fourth of the time?

A. We got to work about half of the time I think.

Q. Then wouldn't that make a great deal more than 35 days?

A. Yes sir I suppose so.

Q. How many work days in a month?

A. 28 I suppose.

Q. And you were there 4 months and a half. And ain't you very sure that you got more than one whole month out of that?

A. I told you I didn't know how much we got. I know it was real bad weather and sometimes the water was up—it was real bad weather all that Fall.

Q. When did the bad weather set in?

A. We went to work in August if I am not mistaken, and I don't think we had but two or three weeks pretty weather before it commenced raining and getting bad. I don't remember exactly the number of days and all about it.

Q. You don't know how much your father got outside of that job, outside the cost of superintending?

A. I think I do. I know what I heard him say at the time.

Q. How much was it?

A. I heard him say at the time that he had saved them over $1,000.00 on the engineer's estimate, and the engineer's estimate was $3,000.00. That is what I heard him say at the time.

Q. Who?

A. All the men up there, my father, my uncle and brother
2110 Jack and Mr. Bowker.

Q. The people interested in the contract said they had saved the company one thousand dollars on the engineer's cost, did they?

A. Yes sir.

Q. You never heard the engineer say that, did you?

A. Yes sir the engineer in charge, or the superintendent.

Q. What did he say about it?

A. He said he had come out very successful on it and saved the company some money.

Q. How many men did you have employed there?

A. Sometimes we wouldn't have but four and sometimes sixteen and eighteen.

Q. How much did he pay them?
A. From 80 cents to $1.25. We paid the steel drivers $1.25.
Q. The Water Company paid for the ammunition?
A. The Water Company paid for the ammunition.
Q. How much did that cost for the job?
A. Oh I don't know; You could find out from Mr. Woodruff's books.
Q. Can you give us any idea?
A. No sir.
Q. The Water Company paid the Blacksmith's bills?
A. No sir; well they paid it, but this is the way they paid it; we furnished our own blacksmith shop, and they hired a man by the day to do the blacksmith work.
Q. The Water Company paid him, you mean?
A. Yes sir the same as the other people.
Q. That wasn't included in the price of your father's work was it?

A. Yes sir, we would all go there of a Saturday evening
2111 and pay the men off. Our pay-roll, say we had four men, the time and amount would run out here, and we added up the amounts and paid them all off.

Mr. PICKLE: The money was paid to your father and he paid them off?
A. Yes sir.
Q. Who bid against you for the work of digging that pit?
A. I don't remember anybody except Jim Condon.
Q. What was his price?
A. I don't remember it; I don't remember father's bid, but I think it was $1.10.
Q. Mr. Condon's bid was a great deal higher than your father's wasn't it?
A. Yes sir.
COMMISSIONER: I would like to ask the witness a question. If the Engineer's estimate was $3000.00 and the bids were all rejected because too high, then your father must have bid over $3000.00?
A. Yes sir, I suppose so, but I don't know about that, for I don't know what the bids were.
Q. Mr. Hood, isn't a rule in letting work of this kind that where the engineer's estimates are not very much exceeded, the work is always let, and the owner refuses to let the work only where the engineer's estimate is largely exceeded?
A. Yes sir. That wasn't the way how come this not to be let by contract; if I remember it correctly, it was in the Fall of the year, and they were afraid of high water, and they wouldn't make bond to complete it in a certain length of time as they wanted them to.
Q. That wouldn't affect the contractor?

A. They wouldn't give them the contract.
2112 Q. If there were difficulties in the way of the work of the kind you mention, wouldn't they have been the more anxious to have let the contract?
A. Oh yes sir.

Q. Why didn't they let it then?

A. I don't think there were any bidders except father and Mr. Condon and I don't think either one of them wanted it.

Q. If they took bids they would have to let the contract to them, wouldn't they?

A. Oh yes sir.

Q. How much rock was there exactly in that reservoir work?

A. I don't know sir as I wasn't up there but twice.

Q. There were some rock wasn't there?

A. I didn't see but very little.

Q. How much did you see?

A. I don't know that I saw any at all to amount to anything; I don't think there was any solid rock in there to amount to anything. I was up there the first morning they went to work and I was up there once afterwards but I don't reme-ber how far along they were at that time.

Q. Such bouldwers as were in there were taken out at the expense of the water company, wer-n't they?

A. No sir, the contractor had to take them out if there were any boulders in there they were taken out with pick and shovel.

Q. Then is it a fact that there were no rock in there at all?

A. I couldn't tell except what I saw in there.

Q. Then if there were any in there they were to be taken out——

A. At 12½ cents a yard.

Q. Didn't you say awhile ago if there were any boulders in there they were to be left in there by the contractors?

A. So long as they didn't come in the way of the wall, that rock was to be left there and the dirt taken away.

2113 Q. And the water company was to take it out?

A. That rock was to be left.

Q. Then the water company didn't have to take it out?

A. Nor the contractor either.

Q. You don't mean to say that if there was a big boulder sticking up 5 or 6 feet they would leave it there?

A. Oh no sir, but if there was a solid ledge of rock so long as it didn't come in the way of the wall. The boulders were to come out. There were no specifications for boulders at the time; in other words the water company was to move all such stuff as that.

Q. All such stuff as what?

A. This ledge I would say the water company would have to take that out because it wasn't in this contract.

Q. Well that is exactly what I was asking you? Had any dirt been moved at the reservoir before Lawson Irwin began to work on his 12½ cents contract?

A. No sir I don't think there had.

Q. You were there when he began work?

A. Yes sir. I don't think there had been anything moved. I think it was all a clear bill.

Q. Whom did your father and his firm contract with?

A. Mr. Fuller I believe was the engineer in charge of the work.

Q. Who was running the Knoxville Water Company at that time?

A. I don't know sir. John Durham was one I think.
Q. Was Mr. Loweree there?
A. I don't remember. I know Joe Hart was there.
Q. Don't you know that Mr. Durham didn't come here until two years after that was completed?
A. I don't know sir.
Q. Was Mr. Loweree there?
A. I don't know sir. I don't know who any of the offi-
2114 cers were of the company at all?
Q. Mr. Hood you have no written memorandum or anything of that kind to refresh your recollection of these matters?
A. No sir I have just got it the way I remember it, and I don't remember much about it really.
Q. When did you begin to give your attention to this matter?
A. On yesterday morning I believe Mr. Trent came down to my office and about a week ago I got a letter from Mr. Pickle asking if I remembered the work, and I remembered the work very distinctly then.
Q. I suppose you had never thought of it from 1882 up to this time?
A. Yes sir I did some work for Mr. Kimball up there and I thought of it considerably then.
Q. When was that?
A. About two years and a half ago.
Q. What work did you do for Mr. Kimball?
A. I built a bridge from the Pump Station to the Insink Tower.
Q. You did that work for Mr. Dallas instead of Mr. Kimball didn't you?
A. Yes sir what I meant by saying Mr. Kimball, it was for the Knoxville Water Company.
Q. You made this contract for digging that pit and excavating the tunnel with the Knoxville Water Company, didn't you?
A. No sir I didn't make any at all.
Q. Whom did your father make it with?
A. He made it with the officers of the Knoxville Water Company.
Q. You are positive on that point?
A. Oh yes sir.
2115 COMMISSIONER: What officers, Mr. Hood?
A. I don't remember the names of any of them now. I didn't pay any attention to them; if I did I don't remember them now.
Q. You say you had failed in your work in the Ooltewah cut-off?
A. No sir I didn't say we failed. The weather was so bad the winter before and we were in very short circumstances; in fact you might say we failed too, because we didn't have money enough to pay out and we were trying to get money to pay out.
Q. This was a sort of a desperation contract?
A. No sir, we bid so we would be sure not to lose anything on it. We bid 14 cents and Lawson Irwin bid 12½ cents, and there had been work done of that kind around for 10 cents.

Redirect examination by Mr. PICKLE:

Q. Did A. J. Hood and brother, furnish the tools and outfit for this work?

A. Yes sir a complete outfit.

Q. And that was a part of the consideration of $3.00 a day that was paid them?

A. Yes sir; I am not positive about that. I told Mr. Caldwell that that was my estimation—that that was usually what they got a day.

Q. Was the fact that they furnished the outfit included in the wages paid them?

A. Yes sir that is the way the- usually did it.

Q. Was there any trouble there about the blasting on account of the proximity of houses around there?

A. No sir there wasn't but one house anywhere near, and that was a little two room house on top of the hill that had lewd women in it, and they wouldn't have cared if they had blasted it in the river. A man by the name of John Instep lived there.

Q. So there was no complaint on account of the blasting there?

A. No sir.

2116 Q. I believe you say the pay-roll was made out and the money furnished your father and he paid off the hands?

A. Yes sir, each month or each week, I don't remember which it was.

Q. Well in regard to the mud excavation you speak about, what did you put that at per cubic yard?

A. That was supposed to be 50 cents a cubic yard.

Q. Was that for excavation that was done under water?

A. Out in the edge of the water. The tunnel and shaft sinking was in one contract and the mud was in another contract and the bids were all rejected, and they took it by the day as I remember it.

Q. What kind of work was it you did recently on the bridge?

A. I just erected a little steel span that went from the Pump Station to the top of the tower they have there.

Q. What kind of a bridge do you say it was?

A. A little steel bridge or walkway.

Q. When was that?

A. I don't remember exactly; it has been about a year and a half ago I think.

Q. Did you furnish the material?

A. No sir, Mr. Dallas had the contract and I was working for him at the time. He was putting it up for the Knoxville Water Company.

And further deponent saith not.

——— ———.

Sworn to and subscribed before me, this — day of — 1903.

2117 S. G. HEISKELL re-called.

Examination by Mr. PICKLE:

Q. Mr. Heiskell are you the same person by the name of S. G. Heiskell who has heretofore been examined in this case?

A. Yes sir.

Q. I want you to state if you know about what is the average per cent. of taxation in Knoxville for State, County and Municipal purposes for say the last half dozen years; that is how much on the $100.00 or $1,000.00 is exacted a year?

A. It will average $1.30 on the hundred — city and $1.30 on the hundred for the State and County.

Q. Then about $2.60 for all purposes, would be about an average?

A. Yes sir. It might be stated that the regular city tax by charter is $1.25, but I got levied in the year 1896 an extra five cents tax, and Mayor McTeer has had levied for two years now an extra fifteen cents tax, ten cents for schools and five cents for the Hospital. The average I take it for six or eight years past would be about $1.30.

Q. For City?

A. For city purposes, and about $1.30 it will average for State and County.

Q. At about what per cent of actual value is property assessed in Knox County?

A. Why General that is an estimate, but when I was in office we figured it at 70 per cent. and I think that is about right. I don't believe on the whole, taking the County over, large property and small, I believe that will be about a fair average, that is 70 per cent.

Q. What per cent. in your opinion would the consumption of water be increased over the consumption under the present
2118 rates of the Water Company by the reduction in rates proposed by the ordinance of March 31st, 1901, assuming that the reduction in rates by that ordinance would be about 20% to 22%.

Mr. CALDWELL: We except to the question on the ground that the witness has not qualified as an expert.

Sustained.

Q. I will ask you Mr. Heiskell whether you are familiar with the situation with reference to the use and consumption of water in Knoxville and of the rates and disposition of the people with reference to the rates of the water company as they exist, and under the ordinance as proposed?

Mr. CALDWELL: We object to the question as immaterial.

COMMISSIONER: Let him answer the question. I suppose he is trying to qualify his witness?

A. I am familiar with the old rates and with the proposed rates and with the feelings of the people of Knoxville in regard to the old rates and the new rates.

Q. Well Mr. Heiskell do you think you are sufficiently familiar

with the situation to give an estimate according to your best opinion of the per cent. of increase that would occur in the consumption of water by the enforcement of the new rates?

Mr. CALDWELL: We object to the question.

A. Any estimate given would be purely an estimate and would be in a measure speculative.

COMMISSIONER: I think if the answer of the witness be speculative it should be excluded. I think it is a very speculative thing as to how much more water is going to be used under the other ordinance. I think the witness can say that he is satisfied that the people will use a great deal more water, but when he goes to giving the percentage I think I would have to exclude it because I don't see how you can arrive at a percentage.

2119 Q. Well I will now ask you Mr. Heiskell to state what per cent. of increase would occur by the enforcement of the city's ordinance of March 30, 1901, over the quantity of water consumed under the present ordinance during the year 1901-1902 and also during the year 1900-1901, counting from the first of March as the years?

Mr. CALDWELL: I don't think the witness has qualified himself in water works matters, and second if he had qualified himself in water works matters the answer would necessarily be speculative in its nature and such as no witness would be qualified to answer and we therefore except to the question on those grounds.

Sustained.

Mr. PICKLE: Now we propose and expect to prove by this witness in answer to the foregoing question that the increase in the consumption of water under the city's ordinance during the years named over the consumption under the water company's ordinance would be at least 20%.

Mr. CALDWELL: We move the court to expunge that statement from the record because the purpose and the effect of putting such a question is obvious.

Sustained.

Q. Now Mr. Heiskell I will ask you to examine the paper that I hand you, state what it is and whether you recognize the signatures thereto, and make the same Exhibit "B" to your deposition?

A. The paper is an agreement made and concluded the 26th day of September 1879 between the Mayor and Aldermen of the city of Knoxville, Tennessee, and W. B. McDonough and Company of Cincinnati, State of Ohio, upon the subject of erecting water works for the city of Knoxville. It contains specifications, and
2120 under that head are details of the iron pipes and special castings stock gates, hydrants or fire plugs and various other details. It is signed by Sam McKinney, President of the Trustees of the Knoxville Water works, H. B. Branner, Peter Kern, Peter Staub, Adrian Terry, and witnessed by George M. White and J. B. Pickens. I recognize as true signatures, the signatures of Sam McKinney, H. B. Branner, Peter Kern, Peter Staub, Adrian Terry

and one of the attesting witnesses George M. White, but the other attesting witness, J. B. Pickens I do not recognize. I file the same as Exhibit B to my deposition as requested.

Mr. CALDWELL: We object to the filing of this contract on the ground that it is immaterial to any issue in this cause, it being a paper dated the 26th of September, 1879, and is between the Mayor and Aldermen of the City of Knoxville and McDonough and Company of Cincinnati, Ohio, who are not parties to this record or have any relation whatever to this cause.

Over-ruled.

Q. Now Mr. Heiskell on page "454" Volume "2" of the plaintiff's evidence already taken in this case, being part of the deposition of William Wheeler, he quotes from the deposition of George E. Downing, which seems to have been taken in the same case in which this contract was filed, in which Mr. Downing states, according to the letter quoted by Mr. Wheeler as a part of his answer in his deposition that the Knoxville Water Company on August 14, 1882, ordered from the Chattanooga Pipe Company, with which Mr. Downing was then connected, and that company agreed to furnish and did furnish the following pipe to-wit: "305 feet 16 inch pipe, 2272 feet 14 inch pipe, 2340 feet 12 inch pipe, 458 feet 10 inch pipe, 8000 feet 8 inch pipe, 17,675 feet 6 inch pipe, 9,795
2121 feet 4 inch pipe. Now I will ask you to refer to the contract that you have already made Exhibit "B" to your deposition and state the quantities and size of pipe that was provided in that McDonough contract, and whether they are the same, and if not the same, in what manner they differ from the pipe ordered according to Mr. Wheeler's deposition from the Chattanooga Pipe Works for the Knoxville Water Company?

Mr. CALDWELL: We except to the question as asking for matters that are immaterial, irrelevant and that are not germane to any issue in this cause. General Pickle has said very positively that he was going to make this contract competent, and I think it is time for him to show that it is competent, for he certainly has not done so up to this time. I therefore insist that up to this time the matter is entirely irrelevant.

Mr. PICKLE: The contract with the city of Knoxville was to build in accordance with the Moses Lane plan. There was another plan known as the McDonough plan, which was far less expensive than the Moses Lane plan and my proposition now is to show first, as I have done what the McDonough plan was, and that the pipe ordered was in accordance with the McDonough plan; that goes to the original construction and original cost.

COMMISSIONER: I cannot see the relevancy of it, but will over-rule the objection.

Exception taken by counsel for plaintiff.

A. This contract shows of 4 inch pipe 9,795 feet, 6 inch pipe 17,675 feet, 8 inch pipe 8,000 feet, and then after the 8,000 feet occurs a line that is upon the folding of the paper and is practically

illegible; 12 inch pipe 2,340 feet, 14 inch pipe 2,272 feet, 16 inch pipe 305 feet.

Q. Now Mr. Heiskell I will ask you to examine the paper I now hand you, state what it is and make the same a part of your deposition?

2122 A. This paper is a certified copy over the signature of the Recorder of Knoxville, C. C. Nelson and the seal of the city and a part of the minutes of the Board of Mayor and Aldermen of the city of Knoxville at an adjourned meeting of said body June 23rd, 1881, and which is as follows:

"The following is a copy taken from the minutes of the Board of Mayor and Aldermen of the city of Knoxville at an adjourned meeting of said body, page- "268" and "269" of said minutes bearing date June 23rd, A. D. 1881, and is as follows:

Water Works.—"The Mayor announced the Water Works question in order when Alderman Brooks a member of the Committee read the following:

KNOXVILLE, *June 23rd,* 1881.

To the Board of Mayor and Aldermen of Knoxville.

GENTLEMEN: We propose to build a system of Water Works for your city in strict accordance with the plans and specifications of Mr. Lane for the sum of Ninety-Five Thousand Dollars ($95,000) all to be completed within one year. This bill includes all material and labor of whatever kind necessary for this object. As iron pipes are advancing we cannot guarantee to hold this offer open over three weeks, but, will at any time give you the benefit of the best market rates.

Respectfully, R. D. WOODS & COMPANY.

The Committee report upon the above proposition that they cannot consider it for the reason that they were appointed for the purpose of receiving bids for the construction of Water Works on private account alone. They Recommend that this proposal be filed with the Recorder.

PETER STAUB.
THOMAS A. R. NELSON.
JOHN M. BROOKS.

I, C. C. Nelson, Recorder and Treasurer of the city of Knoxville do hereby certify the foregoing to be a full, true and perfect
2123 copy of the proceedings of the Board of M. and Aldermen which it purports to give, as the same appears of record in the minutes of said Board, pages "268 & 9" bearing date June 23rd 1881 and now in my office. Given under my hand at office in the city of Knoxville, Tennessee, August 14th A. D. 1903.

[SEAL.]

C. C. NELSON,
Recorder and Treasurer."

Mr. CALDWELL: We object to the same as incompetent because irrelevant and immaterial.

Over-ruled.

Exception taken.

Q. Mr. Heiskell when was the standpipe eliminated from the Moses Lane plan?

A. The date I do not remember, but it was cut out when the question of building the water works was finally settled by the City Council of 1882.

Q. Had it been cut out at the time the proposition of R. D. Wood and Company was made in 1881?

A. Not that I know of. All I know is that while we had that under discussion in 1882, there was an expert, whose name I have forgotten brought into the Council, and gave as his opinion that the standpipe should be eliminated, and by vote of the Council it was eliminated, but whether it was ever cut out of the Moses Lane plan before that I do not know.

Mr. CALDWELL: We object to the answer as calling for record evidence.

Objection sustained, if it was eliminated by the Board.

Q. Do you know of any such record to furnish a copy of it?

A. I don't know whether the motion to cut out the standpipe was taken down by the Recorder or not.

2124 Cross-examination by Mr. CALDWELL:

Q. Mr. Heiskell, this 70% assessment on the actual value, is a matter of comparatively recent date isn't it?

A. I would say my opinion of the assessment being 70% goes back to the time I was first Mayor in 1896. I remember that I was putting in a message to the Board upon the subject of getting more revenue, and I gave the figures for the decrease of the assessment for several years back, and I came to the conclusion then we were paying on a 70% basis and tried to get the Board to get the assessment raised.

Q. The assessment on the larger properties has not been upon as high a basis as the smaller ones, has it?

A. No sir.

Q. And previous to the year 1896 didn't the average run less than 70%?

A. Well it is right hard to tell. That was my estimate of the matter. I know that on some of the smaller properties their assessments were larger in proportion than on the larger property holders, as some of the larger ones were not paying exceeding 50%.

Q. Now in regard to the pipes referred to in the deposition of William Wheeler, do you know whether the same sizes, quantities and weights were called for in the Moses Lane plan?

A. I never saw the Moses Lane plan.

Q. Then you wouldn't undertake to say that the Moses Lane plans were different from the McDonough plans in this respect?

A. No sir; the Moses Lane plans disappeared at the time we were making the contract and they never could be found even after a diligent search, and it was always a mystery what became of those plans and specifications?

2125 TUESDAY, *September* 1*st*, 1903.

The further taking of testimony was resumed.

Dr. H. P. COILE, next witness called on behalf of the Defendant, having been first duly sworn, testified as follows:—

Examination by Mr. PICKLE:

—. Doctor, what is your age, residence and occupation?

A. I am nearly fifty-one; a resident of Knoxville; Physician.

Q. What connection had you with the Lonsdale Beaumont Water Company?

A. I was one of the organizers of that company, and a stockholder, and was President of the Company for several years.

Q. Who was the contractor that put in the Lonsdale Beaumont plant?

A. George W. Sturtevant of Chicago.

Q. I hand you a paper, which is a certified copy of the lien of the Lonsdale Beaumont Water Company in favor of the Chattanooga Foundry and Pipe Works, Chattanooga, Tennessee, which copy is certified from the Register's office of Knox County, Tennessee, and purporting to show the quantity of pipe furnished by that company to Mr. George W. Sturtevant for the construction of the Lonsdale Beaumont plant. I will ask you to examine this paper, and make it Exhibit "A" to your deposition, and copy as part of your answer that part of the paper which purports to give the dates, quantities of pipe furnished, price at which furnished, and a statement of the account generally?

Plaintiff excepts to the introduction of the paper in question on *that* ground that it is incompetent legally, and in fact because it does not purport to be a full statement of the pipe furnished by the Chattanooga Foundry & Pipe Works to the Lonsdale Beaumont Company
2126 or its contractor; also because it is merely a claim of the Chattanooga Foundry & Pipe Works, and is not an instrument of the kind which can be admitted as evidence in a Court of Law; also because the best evidence of the amount of pipe sold by the Chattanooga Foundry & Pipe Works to the said Water Company, or its agent or contractor is the testimony of the proper officers of the said Chattanooga Foundry & Pipe Works, or the books of said Chattanooga Foundry & Pipe Works.

Over-ruled by the Commissioner.

Exception taken by counsel for Plaintiff.

It appearing that in certain cases where the parties to this cause have excepted to the testimony and to the rulings of the Master upon that and other subjects and the stenographer has not noted an appeal from the rulings of the Master to the Circuit Court, it is now

ordered by the Master, by the parties consenting thereto, that as to all exceptions of the rulings of the Master heretofore or hereafter made, an appeal to the court is allowed the party against whom the Master's ruling was made.

A. I have examined the paper and make it Exhibit "A" to my deposition in this case. That part asked to be read from the same is as follows:

Dec. 15.	1 car 319082# at $23.00.....	$367.79	
	Less frt.....	19.02	
1893.			$348.77
April 22.	7 cars 235782# at $23.....	2711.49	
	Less frt.....	141.30	
May 30.	40 cars 1332775# at $23.....	15326.91	
			2570.19
	19380# fittings at 3 cts.....	581.40	
		15908.31	
	Less frt.....	807.18	
			15101.13
2127			
June 3.	1 car 32270# at $25.00.....	$376.86	
	5884 # fittings 3 Cts.....	176.52	
		553.38	
	Less frt.....	23.16	
			$530.22
Aug. 24.	12 cars 424134# at $23.00.....	4877.54	
	3148# special 3 Cts.....	94.44	
		4971.98	
	Less frt.....	253.74	
			4718.24
Sept. 22.	4 cars 147500# at $23.00.....	1696.25	
	2765# special 3 Cts.....	82.95	
		1779.20	
	Less frt.....	88.92	
			1690.28
			$24958.83
	Cr.:		
May 9.	By Ck.....	$811.42	
June 10.	"	2000.00	
" 26.	"	2000.00	
			$4811.42
			20147.41

Q. During what period was the Lonsdale-Beaumont Water Company's Plant constructed by Mr. Sturtevant?

A. My impression now is it was begun in 1892 and finished in 1893; I am not quite positive.

Q. Did Mr. George W. Sturtevant make any purchases of pipe or perform any other work of a water works nature at Knoxville during that period except that for the Lonsdale-Beaumont Water Plant?

A. No sir not so far as I know.

Q. What is the price per ton shown to have been paid for this pipe?

A. $23.00.

Q. I notice in the copy an item dated June the 3rd. 1 car load 32770# at $23.00 or $25.00, the figures $23.00 or $25.00 being so written as to appear as $25.00. I will ask if you have made an examination to ascertain which figure is the correct one, whether
2128 $23.00 or $25.00?

A. I have made a calculation and find that $23.00 is the correct amount as that would give you a total of $376.85½. That tallies with the total given in this paper, or within one-half cent of it.

Q. Then the figures intended there was $23.00 do you think?

A. I assume that it was.

Q. At what price are specials and fittings figured in this statement?

A. They are figured at 3 cents a pound.

Q. Were these figures for pipe, specials and fittings free on board cars at Knoxville as shown by this paper?

A. Yes sir free on board at Knoxville.

Q. Was any pipe furnished in the original construction of the Lonsdale-Beaumont Plant except the pipe furnished by Mr. Sturtevant, if so by whom?

A. Yes sir there was pipe furnished by the South Pittsburg Pipe Company.

Q. That is not embraced in this statement?

A. It is not.

Q. Who bought that pipe, Mr. Sturtevant or the company?

A. The company bought it.

Q. How many car loads Doctor?

A. My recollection is there were two car loads. I bought the pipe myself for the company.

Q. I will ask you about how much a car load comes to, and examine the statement already filed to ascertain that?

A. I see one car load shipped from Chattanooga of 31982 pounds, the price is $23.00 a ton.

Q. I mean the total value?

A. $367.79. I see 7 cars, 235782#, $15326.91.

Q. How many cars is that?

2129 A. That is 7 cars. Taking the 7 cars the average would be 33683#.

Q. And what would be the price per car now?

A. I figure the average 16.8/10 tons at $23.00 a ton would be $386.40. I hav-n't run out the decimals.

Mr. CALDWELL: Plaintiff excepts to the answer of the last question

as a surmise on the part of the witness, and on the ground that there is no reason shown why the testimony of the proper officers of the iron manufacturers, which is the best evidence, should not be produced.

COMMISSIONER: I will allow the answer to remain because the objection to the answer is apparent in the answer and it would only have such weight as might result.

Q. Now Dr. Coile did any other cast iron pipe except that shown on the account of G. W. Sturtevant, and the 2 car loads bought by the company from the South Pittsburg Company enter into the original construction of the Lonsdale-Beaumont Water Plant?

A. No sir.

Q. Did any wrought iron pipe enter into the construction of that plant?

A. No sir there was no wrought iron pipe.

Q. I will ask you Dr. Coile whether or not any cast iron pipe was put into the construction of that plant after the original construction, and if so give the quantity and where it was located?

A. There was a 3-inch line of cast iron pipe put in from 12th Street in West Knoxville to the residence of Col. Washburn.

Q. About how many feet would you estimate that to be?

A. It would be an estimate, but it is a distance of probably
2130 3000 feet or about that.

Q. Well now was there any other cast iron pipe put in the plant after its original construction except this you have just stated?

A. I think not; I don't remember of any other.

Q. Was any wrought iron pipe put into the plant after its original construction?

A. Yes sir there was wrought iron pipe put in.

Q. How much and what sizes?

A. Well of 2 inch pipe there was a line built from White Avenue on 3rd Street I think it was down to the University grounds, a distance of about 500 feet probably, and there was also wrought iron pipe extending from Col. Washburn's to the residence of Mr. Ed Kennedy, possibly a distance of 2000 feet.

Q. And what size was that?

A. 2 inch pipe. That is a continuation of the 3 inch line to Col. Washburn's. It was reduced at that point and made a 2 inch wrought iron pipe from there to the residence of Mr. Kennedy; and then there was another line built which extended from the Clinton Pike to the Tennessee Producers' Marble Company, a distance of possibly 3000 feet.

Q. Of what size pipe?

A. I think that was 2 inch pipe; I am sure it was 2 inch pipe. I don't remember now of any other 2 inch pipe, but there was a quantity of 1 inch pipe extensions made.

Q. About how much of the 1 inch?

A. Well possibly 3000 or 4000 feet. I would only have to estimate that as I have no way of knowing how much it was.

Q. Well now have you given an account of all the cast iron and

wrought iron pipe at the time the Lonsdale-Beaumont Company was transferred to the Knoxville Water Company?

A. All that I remember General Pickle. There may have been other extensions that I don't have in mind, however.

Q. Were you in touch with the plant of the Lonsdale-Beau-
2131 mont Company?

A. Yes sir I was in touch with it. I was President of the company at that time.

Q. I will ask you doctor if the books of this company are in existence?

A. No sir I understand they were burned.

COMMISSIONER: Were they burned when the company went out of business?

A. No sir they were burned in the fire of April 8th, 1897; in the general fire on Gay street; I understand the books were destroyed at that time.

Q. Dr. Coile, was there any part of the system of the Lonsdale-Beaumont Water Company's Plant that was abandoned as useless and did not furnish water to anybody?

A. No sir there was no part of it abandoned so far as I know. Well I am sure there was not. There was a portion of the system that was non-productive after four years.

Q. What part of the system was that?

A. It was the portion that lies in what was known as the Beaumont Land Company's Addition to Knoxville; about a mile and a half of the system was put down in that company's property and the company paid the Water Company, or rather the Land Company paid the Water Company an annual revenue without regard to service.

Q. Of how much and how long after this construction?

A. My recollection is that it was $150.00 a year for four years.

Q. For four years from what date?

A. From the date the water was turned on—from the finishing of the plant.

Q. You state there was a mile and a half of this part of the plant; what size pipe was used there?

2132 A. 4 and 6 inches.

Q. Cast iron?

A. Yes sir; about an equal proportion of 4 and 6 inch pipe.

Q. Was that a part of the original construction?

A. Yes sir.

Q. Well now after the expiration of the 4 years, was this part of the plant of any use in the supplying of water; were there any consumers living on the line?

A. There was no consumer on that line with the exception of the Beaumont School House, so far as I know.

Q. Was that a public School House?

A. Yes sir.

Q. In which a school was maintained only a part of the year?

A. Yes sir in which a school was maintained only a part of the year.

Q. Did this condition remain up to the time the Lonsdale-Beaumont Company surrendered this plant or sold it to the Knoxville Water Company?

Q. Yes sir, it remained practically so, I think. It was the idea, if an explanation is necessary on that point——

COMMISSIONER: Yes, go ahead doctor.

A. —it was the idea of the Land Company to develop their property in putting in that mile and a half of iron pipe, and they were willing to pay the revenue without regard to the character of service.

Q. That revenue ceased about 1897?

A. It ceased at the end of four years from the time we began supplying water, and we began supplying water in 1893, I think, and supplied them for four years, or rather our contract continued for four years with the Beaumont Real Estate Company.

Q. Doctor where is the gravity line situated as connected with this Lonsdale-Beaumont Plant?

2133 A. Well what we call the gravity line was a line of pipe running from the Springs to the pumping station and impounding reservoir—that is what we designated as the gravity line.

Q. What Springs do you refer to?

A. The Griffin and Blanc Springs some four miles from the Reservoir.

Q. How was that line composed; of what sort of pipe?

A. It was composed of terra cotta pipe and sections of cast iron pipe 12 inches in diameter. I believe the line extending from the Griffin Spring up to the Blanc Spring however was possibly 10 inches, or it may have been only 8 inches; I think it was 10 inches.

Q. Well now where was the force main situated in this plant?

A. The force main extended from the pumping station to the 12 inch pipe running from the standpipe into West Knoxville.

Q. It connected with the 12 inch pipe running into West Knoxville, this side of the standpipe, did it?

A. Yes sir, between the standpipe and West Knoxville.

Q. What was the length and size of that force main?

A. Its size was 10 inches and its length, I would be compelled to estimate, 2000 feet perhaps.

Q. Now I will ask you whether that gravity line was of any use to the plant after the water supplied from the springs had ceased?

A. The gravity line?

Q. Yes sir?

A. Repeat the question please?

(Question repeated.)

A. I should say not except its value as material.

Q. Well now after the 10 inch force main between the pump station and standpipe, was there any necessity of that pipe after the water supply from the springs ceased, and the pumping was done from this end of the line?

2134 A. Well parties living in that direction could be supplied from that pipe.

Q. How many parties?

A. Major Carpenter and one or two others out there supplied from that pipe.

Q. What size pipe would have been sufficient to have supplied all the parties on that line so long as your company ran?

Objected to by counsel for plaintiff as the witness has not qualified on that point.

Over-ruled. Exception taken.

A. A very smaller pipe could have supplied that service of course; possibly an inch pipe would have been sufficient for that service.

Q. Would your company have ever placed a 10 inch cast iron pipe there as a service or supply pipe, or deem it necessary to do so?

Objected to by counsel for plaintiff.

Over-ruled. Exception taken.

A. No sir, not for a service pipe.

Q. Doctor, what was the average amount of coal per annum, or for shorter periods consumed, and necessary for the running of the Lonsdale Beaumont plant?

A. My recollection is that in the earliest history of the plant, we consumed about a ton of coal a day, and later, we had to use more coal than that as the number of water consumers increased. Just what the amount was, when I severed my connection with the company, I am not able to answer.

Q. What is the best estimate you can make of the increased consumption?

A. I should think probably two tons a day as the extreme. There was a gradual increase from the first up to that time, possibly an average of a ton and a half a day, but this is only an estimate from what I knew of the consumption of coal at the *at the*
2135 beginning.

Q. What was the cost of coal?

A. We paid at that time about, I think we bought some coal as low as $.90 and paid as high as $1.10 for steam coal.

COMMISSIONER: In what year was that?

A. That was at the beginning of the plant, 1893.

Q. Now what was the highest price you paid at any time while you run the plant?

A. I don't know.

Q. Doctor, was the Lonsdale Beaumont plant operated under a contract with a distinct municipality from Knoxville proper under which the Knoxville Water Company is operated?

A. It was operated under a contract with West Knoxville, a distinct municipality, yes sir.

Q. Did the Knoxville Water Company have any pipe in West Knoxville during the continuance of the operation of your plant?

A. Yes sir, they had pipe there.

Q. Where, and what kind?

A. They had pipe on Clinch Avenue—cast iron pipe on Clinch Avenue, I think it was 4 inches, is my recollection, and a small service pipe on Highland Avenue, possibly 1 inch; and extending on to the University; I think there was a 4 inch pipe extended down

7th Street to the University grounds. They had pipe on Temple Avenue; I am not certain as to that, but I think it was a wrought iron pipe on Temple Avenue.

Q. Now I will ask you to state whether or not the pipes of the Lonsdale Beaumont Water Company paralleled the pipes of the Knoxville Water Company in that territory?

A. Yes sir.

Q. Were they paralleled with larger or smaller pipes by your Company?

A. By larger pipes.

Q. So that when the two plants were consolidated, they had
2136 two lines of pipe wherever the old Company had pipe in West Knoxville, one put in by the old Company and one by yourself?

Objected to by counsel for plaintiff as leading.

COMMISSIONER: You will have to put your question in another form.

Q. State whether or not it is a fact that when the two plants were consolidated there were two lines of pipe paralleling each other wherever the Knoxville Water Company had previously put in pipe?

Objected to by counsel for plaintiff on same grounds as above.

Over-ruled. Exception taken.

Q. Well how is it Doctor?

A. I am not certain that we paralleled them in every instance, or at every point they may have had a pipe. We paralleled them on Clinch and on Highland Avenue, and on Temple Avenue.

Q. What about the University pipe—that connection?

A. The connection?

Q. Yes sir?

A. We connected the University with our pipes. They owned their own pipe on the University grounds.

Q. Who owned them?

A. The University owned it.

Q. Did the Knoxville Water Company remain connected with it after you connected?

A. No sir.

Q. Doctor I will ask you whether or not your plant and the Knoxville Water Company were competing plants for business in West Knoxville after you began operation?

Objected to by counsel for plaintiff as irrelevant.

Over-ruled. Exception taken.

A. Yes sir we were competitors in that territory.

Q. Did the Knoxville Water Company offer any inducements to get customers over there away from you; if so, what?

2137 A. I was told——

Mr. CALDWELL: We object to what the witness was told.

COMMISSIONER: I desire to ask the witness a few questions first. Doctor when was this Lonsdale-Beaumont Water Company sold to the Knoxville Water Company?

A. I don't know.
Q. You had retired from the company before that time?
A. Yes sir.
Q. Do you know whether the Knoxville Water Company furnished any water free as late as the first of April 1899?
A. No sir I *did* not.
Q. Did you know anything about what they were doing as late as the first of April 1899 as to that?
A. No sir.
Q. Your knowledge would go to a period anterior to that?
A. Yes sir.

COMMISSIONER: Under these answers by the witness the objection is sustained and the question and answer excluded.
Mr. PICKLE: We want to state this, that we propose to prove this fact as affecting the revenues of the company as well as upon the issue of the competing characters of these plants, and except to the action of the Master in excluding the answer. We also propose to show what the witness would state, and the Master refused to permit this to be done, to which we except and pray an appeal to the Court.

2138 Cross-examination by Mr. CALDWELL:

Q. When did you cease to be the President of the Lonsdale-Beaumont company?
A. It was in the Spring of 1897 I think.
Q. When did the work of construction of the plant begin?
A. Sometime in 1892.
Q. What time in 1892 as nearly as you can state?
A. Possibly September or October; I am not quite certain.
Q. When did the Pipe laying begin?
A. It was in the Spring of 1893 is my impression about that.
Q. What was the first work done?
A. The first work on the plant?
Q. Yes sir?
A. It was the work on what we called the impounding reservoir, I think, where the Pumping Station was.
Q. You think no pipe was laid until the Spring of 1893?
A. I am not certain about that Mr. Caldwell.
Q. When was the first pipe brought here?
A. Well I don't know sir.
Q. Who brought it, you or Sturtevant?
A. Sturtevant brought it.
Q. How long was the first pipe brought here before the work of laying pipe begun?
A. I don't know sir.
Q. What time in the Spring of 1893 would you say the pipe laying began?
A. Well I have no recollection as to the particular time.
Q. Well what is your best impression?
A. Well I have no impression about that.
Q. If pipe was brought here in December 1892, what was it brought for?

A. The pipe was brought to build the water works with.

2139 Q. How much pipe did Sturtevant get altogether?

A. I don't know sir any more than is contained in the paper that has been filed.

Q. You don't know whether that paper contains it all or not?

A. I do not know of my own knowledge that it does with the exception of what I have already stated with reference to the South Pittsburg matter.

Q. When did Sturtevant get his pay for doing the work—at what intervals?

A. Well he was paid something as the work went along, and a final settlement was made after the completion, and the beginning of the operation of the plant.

Q. Did he pay for no pipe as the work went along?

A. Yes sir I think he made some payments on the pipe. He has credits I see on the account.

Q. In 1893 or 1894 one J. C. Wright measured the pipes laid in the Lonsdale-Beaumont system, didn't he?

A. I don't remember that.

Q. Don't you remember that Mr. Wright measured the pipe for the purpose of effecting a settlement of your company with the city and others?

A. That possibly was done but it has escaped my memory.

Q. You don't deny that it was done, do you?

A. No sir I don't deny it was done; I don't know who might have measured the pipes.

Q. What size pipe are these covered by this lien of the Chattanooga Foundry and Pipe Works?

A. From 4 inches to 12 inches.

Q. Does the lien show it anywhere?

A. I don't know sir whether it does or not.

Q. You have been averaging the cost of pipe by car loads. Does a car load of 4 inch pipe cose as much as a car load of 12 inch pipe?

2140 A. The price usually is increased for the smaller sizes.

Q. How much more would the 4 inch pipe cost than the 12 inch?

A. It would depend I suppose Judge on the contract that had been made with the company for furnishing it. In the pipe furnished by the Chattanooga Company I think that the average was made perhaps when the contract was made with them to furnish it, but if we would purchase small pipe alone it would come at a higher price.

Q. Is there any way to find the exact amount of pipe that was purchased and put into the Lonsdale-Beaumont plant?

A. I don't know of any way to find it.

Q. Do you know the total extent or mileage of the pipe system of the Lonsdale-Beaumont plant?

A. No sir I do not. I had some impressions about that and at one time I knew pretty closely the mileage, but I haven't thought about the matter for a long time, having no interest in the company.

Q. You have no figures on that?

A. I have no figures on it.

Q. Do the amounts that are set out in this lien paper that has been filed, include freight?

A. The freight was paid by Mr. Sturtevant, the contractor, but he was given credit for it. The freight was deducted from the $23.00 per ton. The price was free on board at Knoxville.

Q. Does it include the cartage or dragage?

A. Not at this end of the line.

Q. Have you any way to tell what the amount of that cartage or drayage would be?

A. I have not. I would like to ask permission of the court to amend a statement I have just made, and that is I believe I have in some loose papers in my desk, figures which will show the amount and sizes of the pipe in the original construction, but I haven't them at hand just now.

Q. Those figures were made by Mr. Wright, weren't they?

2141 A. Well sir I don't know who Mr. Wright is; I can't recall Mr. Wright.

Q. I will ask you to examine the part of the deposition of William Wheeler on page 86 of said deposition which I will indicate to you and which shows the size and length of the pipes in the Lonsdale-Beaumont plant and ask you to say whether or not you will deny the correctness of the length or size of any one of the kinds of pipe in the table which I show you?

A. No sir I would not be prepared to contradict the figures here.

Q. Now Doctor you were a holder of stock of the Lonsdale-Beaumont Company, weren't you?

A. Yes sir I was a stock-holder.

Q. When did you dispose of your stock?

A. I disposed of my stock I think about March 1897.

Q. And what did you get for it; I don't mean the exact amount you got for it, but how much per share, and please state what the shares were?

A. Well I had 100 shares—$10,000.00 of the stock and received 20 cents a share or $2,000.00 for it.

Q. In 1897 you say?

A. Yes sir.

Q. What was the capitalization of the Lonsdale-Beaumont Company?

A. The authorized capitalization was $100,000.00.

Q. What was the bonded indebtedness of the company?

A. It was $100,000.00.

COMMISSIONER: Was all the stock issued?

A. No sir it was not.

Q. The force main from the pump station of the Lonsdale plant up to the main between the tower and the city of West Knoxville you say has not been abandoned?

A. Not so far as I know; I don't know whether it has or not.

Q. Don't you know it is now used for supplying the

2142 Proctor Addition?

A. No sir I don't know that fact.

Q. Well it goes to that addition, don't it?

A. Well possibly it does border the Proctor Addition; I am not prepared to say as to that as I don't know the boundaries of that Addition.

Q. Doesn't it go near to the manufacturing plant of the Knox ville Table and Chair Company?

A. Pretty near, but I don't know the boundaries of their plant. It is not very distant from that, however.

Q. It would be useful then to extend it to supply that plant, wouldn't it?

A. I think it would.

Q. Now you don't mean to say Doctor that a 1 inch pipe would afford fire protection to that Table and Chair Company, do you?

A. I had no reference to that company, or supplying that company. That company wasn't in existence at that time.

Q. But a 1 inch pipe would not supply fire protection to that plant, would it?

A. No sir it would not.

Q. You wouldn't regard this pipe as it is at present too large for furnishing fire protection to those plants, would you?

A. No sir I would regard it being about the right size to furnish fire protection to those plants.

Q. You refer in your testimony in chief Doctor to something like a mile and a half of pipe through the Beaumont Addition. You say that a part of that pipe was 6 inch pipe?

A. Yes sir.

Q. I wish you would locate the 6 inch part of it for me?

A. I wasn't on the ground a great deal when that pipe was put in, and I don't think I could locate it. It was put out there in the woods practically and I paid very little attention to that.

Q. Wouldn't the line of that pipe through the Beaumont
2143 Addition be a good line for the extension of the Beaumont system to connect with North Knoxville so as to secure a good circulation?

A. Yes sir it would.

Q. Do you know whether such an extension or connection has been made, Doctor?

A. No sir I do not.

Redirect examination:

Q. Doctor you state that you ceased to be the President of the company in 1897. Did you remain in touch with the company as to voting stock during its existence after that time?

A. Yes sir I had some interest in the company after I ceased to be President and after I sold my stock. I had friends who were stockholders and retained voting contract on certain amount of stock that interested me.

Q. Doctor from whom did Sturtevant purchase the pipe that he put into the West Knoxville Plant?

A. From the Chattanooga Pipe Works.

Q. You state that the prices of smaller pipe is some higher than

larger pipe. I will ask you if it is not a fact that it is only 3 inch pipe that is figured higher on account of size?

A. Well I don't know what the prevailing custom is with reference to that. I only know that when we purchased a quantity of 3 inch pipe that they made the price to us (higher) because they said it was smaller pipe, and that it was more difficult to manufacture these small pipe and it was worth more by the ton than the large pipe was; it was more difficult to make and it took more labor to make it.

Q. As a matter of fact all the pipe purchased by Mr. Sturtevant is figured at the same price of $23.00 per ton, is it not?

A. That is correct.

Q. You were asked if that included cartage and drayage at Knoxville. I will ask you whether or not cartage and dray-
2144 age is figured into the price of pipe, or into the price of laying the pipe, or do you know how that is?

A. Evidently into the laying of the pipe, or construction.

Q. Your attention was called to a statement on page 86 of William Wheeler's deposition in this case showing amounts and sizes of pipe that he figures into the L-B plant and you were asked if you could deny the correctness of that statement, and you say you cannot. Have you any means at hand by which you can verify its correctness except the statements of the amount of pipe purchased by Sturtevant in your company, already made?

A. I have no means at hand at the present time.

Q. Well I will ask you this if it is not a fact that it appears that Mr. Wheeler has figured this pipe at $25.00 per 2,000 pounds while the statement you have filed shows it was purchased at $23.00 per 2,000 pounds?

A. That seems to be the case.

Q. I will ask you whether or not it appears from this statement that a much larger amount and different sizes of wrought iron pipe are figured in it than you have stated were placed in the Lonsdale-Beaumont Plant?

A. That is true.

Q. I call your attention to the 6 and 4 inch pipe and ask you whether or not the number of feet there stated are not considerably in excess than that you placed in the L-B plant?

A. I don't think so General Pickle.

Q. Have you any means of ascertaining whether that is so?

A. Yes sir I referred awhile ago to certain memoranda that I have in my papers that I have had for many years. If I had those papers I think I could determine.

Q. Well I will ask you to look to the memoranda and state whether it is not true that the 6 inch pipe, 4 inch pipe and perhaps the 10 inch pipe figured into this statement are in excess of
2145 the quantity of pipe that was put into that plant?

A. I will do so later.

Q. When was the Knoxville Table and Chair Company constructed?

A. I don't know the date of their construction. It has been

I should think within the past two or three years. They have been building in that vicinity there and I haven't noticed particularly the progress of it. I am not familiar enough with it to answer the question definitely.

Q. You were asked if that 10" forcemain is too large to furnish adequate fire protection for that factory and other factories. I will ask you if a four and six inch main is sufficient fire protection in the business portion of the City where buildings are five story high, if so, if like sized mains ought not to be sufficient outside the City.

Mr. CALDWELL: We object to the same as it assumed a fact not apparent in the record and defendant has not the right to contradict his own witness.

COMMISSIONER: I will allow him to answer.

A. Well I would say that four and six inch mains in a City with tall buildings would not furnish adequate fire protection. They may make out with them but it would not be sufficient. A smaller pipe than a ten inch pipe might and would probably furnish a sufficient fire protection for these factories. I don't believe that it is absolutely necessary to have a 10" pipe to furnish good fire protection to the plants located there.

Q. Doctor Coile you were asked if the connection out there with the North Knoxville plant wouldn't be desirable. Are you aware of the fact that the N. Knoxville plant has 2 lines of con-
2146 nection already with the main plant here, a 12" and perhaps a 10" connection?

A. No sir I don't know about that, I knew they were connected but I don't know at what points.

Q. I mean the connection in one out through the 10th Ward and the other in that direction?

A. I don't know where the connections are made General.

The further taking of depositions was adjourned until 2.30 P. M. Sept. 1st. 1903.

2147 W. M. NIXON, next witness called on behalf of the Defendant, being first duly sworn testified as follows:

Examination by Mr. PICKLE:

Q. Mr. Nixon, give your age, residence and in a general way the kind of business you have been engaged in?

A. I am about 52 years of age; reside at Chattanooga, Tenn. I first started out in life as a shipping clerk—a steam boat clerk, then into the wholesale grocery business as bookkeeper, wholesale grain business, iron ore mining business, then United States Marshal during Cleveland's first term, and then mining and iron manufacturing business, then I was income tax collector for a few months for the Government for East Tennessee, then I was appointed Prison Commissioner for the State of Tennessee in 1895 and was engaged for six years in the building of the new Penitentiary for the State, and in the opening of the mines, equipment and operation of the same and the taking over the convict system of the State and arranging

systems of accounts, book-keeping and reports and methods of handling, keeping and reporting the business of that institution. The last two or three years I was General Manager for the Cumberland Coal and Coke Company, engaged in the opening and equipment of mines, and to some extent the systematizing of the accounts and records of that Company.

Q. Do you consider yourself competent to examine and understand the books of a corporation like the Knoxville Water Company and to ascertain and state results from the books?

A. I think I can understand them and secure such information as enables me to ascertain the results.

Q. Mr. Nixon, to what extent during your term as Prison Commissioner of the State were you engaged in construction work,
2148 and what kind of construction work, and to what extent were you engaged in the purchase of supplies?

A. During the time stated, I have had quite an extensive experience in construction work. We built complete the Penitentiary at Nashville out of stone and concrete and vitrified and common brick, with lime and cement mortar, steel and mal-eable iron, and the appurtenances and power house equipment, electric and compressed air machines, and with equipments for the prison, steam laundry, steam cooking arrangement, hot and cold water bathing facilities, and with water works, pumping water both by Electric power pump and also by compressed air, settling basins, filter devices, with shops and factories for the employment of convicts and equipments operated by electric and steam power, and at the mines the building of a prison and its appurtenances, including cooking arrangements, steam laundry, and the opening and equipment of a mine for the washing of coal and coking it, with gravity and steam hoisting machinery and electric haulage and lighting, and the operation of coal mining machines by electricity.

Q. What was the amount of the expenditures involved in these works that you have mentioned?

A. Something like say from $600,000.00 to $750,000.00.

Q. Who was the active member of the State Commission in the preparation and drafting of contracts, and the making of same, and the purchase of material, etc.?

A. Well I did most of that after consultation with the Architect, Mr. S. M. Patton, but I drafted all the construction contracts and all the operating contracts under which the prison was operated, and purchased largely all the supplies, except for such work as was let out by contract; I bought most of the prison supplies and the prison construction material and supplies.

Q. Now Mr. Nixon outside of the term of your service as Prison Commissioner, during which you were engaged in construc-
2149 tion work what other construction work, and at what time and what nature have you been engaged in?

A. Well my other construction work consisted in house building. I have had some experience in house building. I built a large warehouse at Chattanooga — was one of my first experiences in the building line, and at the mines I have had various kinds of building

experience in connection with mines, the building of railroads, tramways, cars, inclines, chutes and dumps, and have had some experience in the building and repair of machinery around iron furnaces.

Q. I will ask you to state whether or not in connection with the various construction works you have mentioned you inquired into and became to some extent acquainted with the prices of material and prices entering into such work?

A. I tried to, as that was my business to do so. I applied myself assiduously and attentively in order to do so.

Q. Now you spoke of organizing the system of books for the Penitentiary—the mines I believe. To what extent were books required for that institution and kept, and what kind of a system was employed?

A. There were very important requirements in the keeping of the books and records for those institutions, and the system adopted was the voucher system, which is now used by most all corporations and manufacturing institutions, by which all payments of every description was evidenced by a voucher, with a distribution to which account or division of accounts it was applied, and that system was inaugurated both for the maintenance of the convicts for the State and also for the operation of mines and for all branches of the institution by which an income was derived or an expense incurred.

Q. Now Mr. Nixon I will ask you whether or not you have been employed by the city of Knoxville to examine, and whether
2150 you have made an examination of the books of the Knoxville Water Company?

A. Yes sir I have been so employed and have been engaged some weeks in that work and have made considerable investigation in that line.

Q. I will ask you to describe in a general way the books that have been furnished you and which you have been permitted to make an examination of, and state in the same connection whether the methods of keeping those books have been uniform or variable, and also state any peculiarities you found in those books in making your examination?

A. I have encountered four series or stages of books, the first being the Construction Accounts of the Knoxville Water Company under the management of Mr. Loweree. Those books seemed to have covered a period of a year or so, being the year 1882 to sometime in 1883, and there was probably only 60 pages of the Cash book, thirty odd pages of the Journal and some 75 pages of the Ledger. These books record results without details. For instance they charge a contractor with the payment of money and give him credit for reservoir work or pumping station labor, or some credit in general terms without stating quantities or prices.

The next series of books are a set of books that cover an operating period of the Knoxville Water Company from the year 1883 to the first of January 1892 under the management of Col. A. H. Martine, which consists of a Ledger, Journal and three Cash books. The over proportion of Cash books arise from the fact of their having kept an account with most every water taker, and giving him credit for

every payment he made, which required rather an over proportion of Cash books, without handling a very large amount of cash.

These books give some particulars, but not very great detail
2151 of the quantities and prices; in fact, very few quantities or prices are stated. No papers, bills or vouchers explaining these entries were obtainable, it being supposed that they were lost.

The next book is for the period from the first of January 1892 to March 31st, 1900, and is covered by one book, labelled on the back "Treasurer's Accounts Knoxville Water Company." It is a peculiar kind of book to me as I never saw one before.

Mr. PICKLE: I would like to have that book here.

Q. Now is there any other book that follows that?
A. Yes sir there is another book that follows it.
(Books here introduced in evidence.)

A. This book labelled "Treasurer's Accounts Knoxville Water Company" is a combined Cash book Journal and Ledger and covers the period of business from January the first 1892 to March 31st 1900. It is a Cash book from page "2" to page "90," then it turns to a Journal and runs as a Journal from page "90" to page "200," then from page "200" on it is a Ledger, commencing at page "201"; then the Cash jumps from page "90" to page "119" in the Journal —there is a page of cash in the Journal, then the cash goes back to page "1" and to a page without a number, then for completion there is an annex pasted on a piece of paper to cover some charges and one sheet is cut out in between the first page and the no-numbered page preceding page No. "1." This cash account appears to carry all the operating expenses during the year in one general expense account, and that expense account at the end of the year is distributed, or the greater portion of it, to the various operating accounts, from some memorandas in charges, supposedly from bills and vouchers that are not along with the book, so that at the end of the year the entire gross accumulated expense account is distributed into these operative accounts in some proportionate method, that uses up the expense account, except a balance remaining, which

is still left in the expense account and absorbed by the profit
2152 and loss account, as is all the distributive operating expense accounts except those that are charged into construction account. The accounts that are used for distributing this expense are found under the heads of Abatements, Construction, Repairs, Salary, Rebates, High Service, Filter Station, New Services, Extensions, Supplies, Alum, Tools, Fuel at Pump Station, Fuel at High Service and Filter Station, Taxes, Insurance, Interest, and in this case Office Furniture.

Mr. CATES: What are you reading from Mr. Nixon?
A. From page "95" of this book.
Mr. CATES: Of what year?

A. Of the year 1898 and 1899. In addition to this book are the addition of 32 extra pages that are inserted between pages "98" and "101," and are numbered with a pen "98 *a, b, c, d,* &c. down to *z*" and another series numbered "99 *a, b, c,* &c., down to *z*" and another

series numbered "100" with the same letters down to "I" making 32 pages of a different book that is combined in this book. These pages furnish more items than any other part of the book, as they itemized the charges and credits to a greater extent than in the remainder of the book, the balance of the book simply giving the naked figures.

Q. In that connection state what year those particular pages refer to?

A. They refer to the year 1899 and 1900.

Q. Those inserted pages?

A. Yes sir. It seems to be an annex to make the book last until the end of the year, or to extend these charges, or for some such purpose, and the items on this book appear to have been copied from bills or vouchers, or from some other book, or the leaves torn out of some other book, I cannot tell which. The other peculiarities of this book are the want of order in a great many of the entries; the
2153 chronology is not kept up very strictly. A great many charges for the years 1896 or 1897 are mixed with the year 1900, and the charges for the year 1900 are back and mixed in with the charges of 1896 and 1897. This book is not a book of original entry in any sense, unless it is some items in the case. It is a secondary book, or a book made up from books, papers and vouchers of original entry. This book appears to have more scratching and erasures than any book I most ever handled.

Mr. CALDWELL: We object to the latter part of the witness' statement in regard to scratchings and erasures.

Sustained.

A. Well the peculiarities that I would point out would be on the first page of this book the amount has been erased and a credit written over it "Elbert Wheeler, $33,000.00" as cash received. The next scratching is on the opposite side of page "1" where interest account has been erased and there appears "E. W. William Wheeler and William H. Bowker. An entry in a different hand at the bottom of page "6" crediting Elbert Wheeler with $8,000.00. On page "7" several operating items, five lines have been scratched off and rewritten or something. On page "20" there has been written in a different hand four entries of income accounts and a credit of the Knoxville Water Company, and a credit to Elbert Wheeler of $5,000.00, the income accounts being

Taps	$196.80
Water	$12297.43
North Knoxville Water Co.	546.44
Elbert Wheeler	5000.00

These entries are without date, but they are under the year 1893-1894.

On page "23" either an erasure appears or it is written in a different hand, it being a charge of the Knoxville Water Company
2154 $109.33 and expense account $8,385.80. On page "25" there are additional entries at the bottom of the page charging ex-

pense account with $12,822.56, expense North Knoxville Water Company $314.87 and Elbert Wheeler with $8,000.00.

On page "29" the last charge on the last line has been erased and a charge to the North Knoxville Water Company of $323.22 is made.

On page "226" in Profit and Loss account, credits by expenses of $35,476.88 and $1,621.11 appear to have been erased and rewritten or something else erased where these amounts are inserted. There appears scratching of interest account on pages "228" and "229" by which the amounts have been struck out. One is $218.33 (for explanation see 229) and on page "229" an item of June 2, 1900, $2,986.70 is struck out without explanation. The item of $218.33 on page "229" appears to have been put in the place of something that was scratched out.

In salary account page "244" an item of date perhaps March 31st, 1900, $4,448.37 appears to have been changed or scratched and written on top of the scratching.

On page "34" of the Cash book there appears an entry without date in a different hand crediting Elbert Wheeler with $18,000.00.

On page "56-57" the two last entries on page "56" appear to have been erased and rewritten, the same beng interest G. Mc Cou. $75.00 and the other is interest coupons George F. Fairchilds $180.00. The two last items have been scratched or erased and the items now standing charged on March 31st, taps three months $230.00, water three months, $16,526.16. Also on page "57" two items appear to have been scratched and Elbert Wheeler is charged $247.89 and Neptune Meter Company $305.10, and interest coupon, I am not certain about that, $480.00.

2155 On page "66" of Cash book, the last four items appear to be scratched and rewritten as now appears.

Water three months	$17,029.64
Interest A. W. settlement loan	218.33
Notes payable, two $5,000 each	10,000.00
Notes payable, Two $5,000 each	10,000.00

On page "76" at the bottom the last two entries seem to have been erased or scratched before the last entry was made.

Lonsdale Beaumont Water Company,	October 28	$129.54
" " " "	November 11	595.31

On page "85" two items of interest are stricken out, leaving William W. $1661.51 and E. Wheeler $662.69 and W. F. Bowker $662.59, being amounts paid them account endorsements.

On same page the last entry appears to have been scratched and rewritten, or scratched before the writing was placed on it.

The further taking of depositions was adjourned until Wednesday morning, August 19th, 1903, at 9:00 A. M.

2156

WEDNESDAY MORNING,
August 19th, 1903—9:00 o'clock a. m.

(Continuation of direct examination of W. M. NIXON:)

A. The next account is the Franchise Account. Almost every charge in this account has been changed. This account appears on page 254. The first item, $4,781.87 posted from the Ledger, page 136 says, Franchise to expense legal account. The explanation has been erased and rubbed out leaving the $4,781.87.

Q. What is written over it?

A. Legal a/c is written over the place that was scratched out. The Franchise account as given in the deposition of Mr. Wheeler, page 110, Volume "2" says, "expense Wheeler and Parks Nashville and Knoxville, account litigation $4,781.87," but if that was ever in the book here it has been scratched off. Something has been erased for the book shows that. The words seem to have been erased from the book as explained by the deposition, the same being "expense Wheeler and Parks Nashville and Knoxville account litigation."

Mr. CALDWELL: We object to what "seems to have been erased from the books," as that is merely a surmise and incompetent.

COMMISSIONER: Well upon what theory do you think this seems to have been something else?

WITNESS: From the deposition; I will show you the deposition.

COMMISSIONER: I sustain the objection to his surmising that there is an erasure there which he supposes to be such and such a thing.

Q. Go ahead with your next item Mr. Nixon?

A. The next entry on this Franchise account is $2,575.00 on April the 9th 1894. The explanation after "Franchise account" is erased and "legal account" inserted. The erasure occurs on page 27 of the Cash book. It has once been written "Franchise" and
2157 some explanation, and that has been erased and "legal account" written instead.

The next item is March 31st, 1895, $178.11 posted from the Journal page 153. This is an entry of Franchise account "serv. and Exp." (services and expenses) and then an erasure, and then "various legal matters" inserted. The deposition explains that also. It says: "Services and expenses of William Wheeler."

Mr. CALDWELL: What says that?

A. The deposition.

Mr. CALDWELL: We object to that as the witness is testifying about the book and not the deposition.

COMMISSIONER: Just refer to the books and not to the deposition, Mr. Nixon.

A. All right sir, I was just accounting for it in that way.

A. The next item is $3092.75 March 31st 1894 from Cash book, page 31 I believe it is. The explanation after Franchise is erased and "legal account" is inserted. Here it is, being the last entry on

page 31, Franchise, and the explanation or line has been erased and "legal account" has been written.

The next item is $700.00 on February 26th, 1895, being on Cash book page 37, the charge being Franchise, C. T. Cates, legal account, the entry after Cates is erased and "legal account" is inserted.

The next item is $5,000.00 to C. T. Cates for extra services paid in stock. No erasure.

The next item is $1,385.00 on February the 28th, 1899. That is Franchise account with no explanation and no erasure; then there are two items $725.00 International Trust Company, and $3015.00 to the Elliott National Bank, no erasure and no explanation.

The next item is $535.00 January 30, 1900 found on page
2158 87 of the Cash book which states Franchise, International Trust Company and then an erasure.

The next item is on Cash book page 77, charged to C. T. Cates, Jr. salary July 1st 1899 to October 1st 1899, $250.00. This entire line seems to have been scratched out before this entry was made on it. The figures I don't think have been changed; at least it don't indicate clearly that they have been changed.

Mr. CALDWELL: Is that last item of $250.00 in the Franchise account?

WITNESS: No sir. I have already completed the Franchise account.

A. I believe that those complete the glaring erasures that I have noticed in passing through the book. There are a good many others, but not of such importance or significance.

Q. Now Mr. Nixon, have you answered the question which I propounded yesterday, which is as follows: I will ask you to describe in a general way the books which have been furnished you and which you have been permitted to make an examination of, and state in the same connection whether the methods of keeping those books have been uniform or variable, and also state any peculiarities you found in those books in making your examination." Now have you mentioned all the books Mr. Nixon?

A. I think I have described all the books, unless it is the Pipe Construction book.

Q. Which was the last book you referred to?

A. The Treasurer's accounts, embracing the business from January the first 1892 to March 31, 1900; then there is a later book, it is a similar combined book, being a Cash book, Journal and Ledger combined, more elaborately ruled, and provided for the entry of vouchers, which has been used from January 31, 1900 to the present time, and is still in use. It has the distribution columns all ruled,
printed and headed for the cash. Of course the Journal part
2159 is ruled the same as the Ledger, but the Ledger is a double paged Ledger. They are different books under the same plan. This last book is of more modern method and keeping. This book contains very few scratches or erasures. Occasionally a figure has been erased or an amount has been changed from one column to

another, but no entry or explanations have been erased that I have discovered.

Q. Now you have mentioned all the books?

A. All the books that were furnished me except the Pipe Construction book. I also had some construction plans of buildings that were used by the contractor and mechanical witnesses, and had some vouchers.

Q. From whose custody did you receive these books?

A. From Mr. Kimball the Superintendent of the Water Company.

Q. Were the books kept in the office at Knoxville or were they forwarded here from Boston?

A. He stated to me that they had to be forwarded from Boston, most of them. These two Treasurer's Account Books came from Boston and the vouchers came from Boston, but I think the Pipe Construction Book and perhaps those old books of Loweree and Martine's administration were already at Knoxville as I understood.

Q. Now Mr. Nixon you speak of erasures in the Treasurer's books running over the period from 1892 to 1900. What do you mean by "erasures" a mark out by the pen or scratching off so as to completely erase or obliterate the former writing?

A. In my answer I referred to two or three items that had lines struck through the writing. For instance interest account has been erased that way; the other erasures were erased by knife or steel eraser by striking out the writing so that it is illegible and cannot be read, not even with a glass. I tried to see if there was enough
2160 of it to be read with a glass, but I couldn't see it.

Q. And on top of those erasures have been written the words you have stated?

A. In some cases they have and in some cases they have not.

Q. What has been the extent of those erasures; have they embraced one or more lines sometimes?

A. Generally one line. There is probably an entry or two where they cover two lines, part of two lines, one line and part of another, but generally one line and sometimes the part of a line.

Q. Is it or not plain to the eye that these erasures have been made as you have stated?

A. Oh very glaringly plain.

Q. You have stated that certain leaves were inserted, I believe you stated 34 leaves?——

A. 32 leaves I believe it was.

Q. —in this book that runs from 1892 to 1900. I will ask you to state whether or not those leaves are distinguished by color ruling or in any other respect from the other portions of the book, and also whether or not it is plain that they have been bound into the book as extra leaves?

A. It is very plain, they being white leaves and the balance of the book blue paper with printed numbers of pages. The 32 inserted leaves are white paper and are paged with a pen, and it is very apparent that they were not built in the book originally.

Q. Among the books furnished you I will ask you whether there is any book of original entry?

A. No sir; there is probably a part of the Cash parts of these various books that could be considered original entry, but as a whole they are not books of original entry. The only records of original
2161 entry that I handled in this investigation of consequence were some of the vouchers.

Q. I will ask you for what period were you able to obtain vouchers to verify your examination of any of these books?

A. I had some vouchers—some construction vouchers—from 1899 to September the 30th 1902. I had operating account vouchers or a part of them, from 1899 up to September the 30th 1902.

Q. Now were you furnished with vouchers or original entry of any sort to verify the books by for any of the rest of the period of the company's existence?

A. No sir; in fact, these books showed very little construction—these latter books particularly.

Q. State whether or not you were permitted in your examination of the Operating Expense Account to go back of March 31st 1899?

Mr. CALDWELL: I object to that as it is already a matter of record.

COMMISSIONER: Under the exception of the complainant the Master rules the answer to this question out.

COMMISSIONER: Defendant's counsel applied for leave to put in the record what he expected to prove by the witness and was not permitted to prove, and the Master declined this application of defendant's counsel.

Q. Now Mr. Nixon I will ask you whether the books of the Water Company, and in this I refer to the original books and all the books that were furnished as you have already stated, afforded the data upon which the cost of construction of the Knoxville Water Company's plant could be calculated from the books themselves?

A. It could not be done from the books furnished me.

Q. Now will you explain why?

A. Well the first set of books or construction accounts furnished no details, no quantities, no prices, no anything but amounts of money.

2162 Mr. CALDWELL: Will you designate what books you refer to as the first set of books?

A. Yes sir, the first books were the Loweree books—the Construction Account books.

A. The second series furnished more particulars, but were so intermingled and so intermixed with operating expenses as not to be intelligent without other papers and other information. By the second books I mean the books running from 1883 to January the first 1892 under what is known as Colonel Martine's administration or management.

The third book contains a very small amount of construction, only the small amount of pipe laying or something of that character done by the company during the years from January 1, 1892 to March 31, 1900. The North Knoxville extensions to the plant and the additions at the Pump Station and Filter Station, and high pressure and pipe additions, and the Lonsdale-Beaumont West Knoxville

additions seem to have all been done by contractors—by Messrs. Wheeler and Parks as contractors and Mr. William Wheeler as contractor—and the records of the contractors are not on the books. The only thing shown on the books is so much preferred and common stock paid for so much work. Therefore that book is totally without information that would enable one to make up the construction cost of the plant.

Q. You did not have before you any of the books of Wheeler and Parks?

A. No sir.

Q. About what amount of preferred and common stock do the books show were issued to Wheeler and Parks on account of construction from 1891 and 1892 on up?

A. I don't recall the amounts, but something like $725,000 over $700,000 anyway.

2163 Q. Mr. Nixon have you examined the deposition of William Wheeler from pages "21" to "100" containing what he denominates "Classification and fair construction cost of the physical plant of the Knoxville Water Company to March 31, 1901"; have you examined that statement?

A. I have.

Q. On page "22" or rather on pages "21" and "22" Mr. Wheeler shows by a summary statement a total value of the physical plant of $711,379.51, which he says includes twenty (20%) per cent. upon certain or most of the items of construction for the use of money lying idle during the construction period for engineering services and for contractor's profits and risks, estimating these per cents individually at 3% for the use of money, 6% for engineering services and 12% for contractor's profits and risks. Now I will ask you to what amount is this $711,379.51 made up of this 20% for the use of money, engineering services and contractor's profits. Have you added the items and what is the aggregate of all those items entering into that sum?

A. I have gone over these estimates and made a summary of this 20 per cent. addition to each item, and added the same up, and it aggregates, according to my calculation the sum of $114,292.71.

Q. Now I will ask you to state in view of his fixing the total of these per cents at 20%, and of their aggregating individually 21%, how much of this $114,292.71 is apportionable to interest for the use of money, what proportion to engineering services, and what proportion or amount to contractor's profits and risks?

A. I have divided the $114,292.71 by "21." I have multiplied it by "3" by "6" and by "12"; by "3" for the interest which makes an amount of $16,327.53. Multiplying it by "6" the engineer's charges gets $32,655.06, and multiplying it by "12" the contractor's profits secures $65,310.12. Adding these three amounts together proves its correctness, amounting to $114,292.71.

2164 Q. Mr. Nixon, I will ask you to state what portions of the work, buildings, pipe, &c. that are estimated by Mr. Wheeler in this estimate of fair construction cost had entirely disappeared from the plant of the Knoxville Water Company on the 31st of

March 1901 I mean for you to state the portions, with the estimates at which they were placed by Mr. Wheeler, and the pages on which those items may be found, that had entirely disappeared and gone out of the plant and ceased to exist. Give the items and the amounts at which they were estimated and the total?

Mr. CALDWELL: I desire to first ask the witness a question right here, and that is whether he *gest* his information in reply to that question from the books of the company or from the deposition of William Wheeler?

WITNESS: From the deposition of William Wheeler.

Mr. CALDWELL: Now I submit that that is incompetent.

COMMISSIONER: The Master holds that the question is somewhat close, but in this kind of classification it would be useful to all parties and the exception will be over-ruled.

A. I find this amount as ascertained by Mr. Wheeler $95,987.04, of what he terms "culminated or complete depreciation."

Mr. CALDWELL: Do you differ from Mr. Wheeler as to that amount?

A. I agree with him; that these things are gone.

Mr. CALDWELL: Then we object to that.

COMMISSIONER: The Master holds that he may show the figures in a different way or position.

Real Estate $1,000.00

Composed of the following items: Water supply abandoned, being rights of way $500.00, water rights $500.00, discontinued May 1900 (page 164).

2165 River Station Engine House..... $3,806.34

See page 129. Walls of Engine pit about 1/3 torn out and replaced in 1900, $450.00. Foundations of buildings about ½ taken out and abandoned in 1894 $337.50. Suction Pipe Tunnel about ½ abandoned in 1894 and ½ in 1900, $770.00. Cement floor abandoned in 1900, $122.50. Wooden floor abandoned in 1900 $40.00. Spiral Stairs about 1/5 abandoned in 1900 balance used elsewhere, $50.00.

75,000 brick, 55% taken out in reconstruction in 1895, $536.25. 10 window sills, 4 taken out in 1895 $16.00. 10 large windows, 4 taken out, and 2 circular windows 1 taken out in 1895, $45.00. 1 door and frame taken out in 1895, $12.00. Roofing, &c., balance of item taken down in 1895 except 750 feet of framing and slate used elsewhere, $792.70, making $3,171.95 plus 20%, $3,806.34 as above.

Boiler House $1060.44

See page "133." Replaced in 1895.

Tool and Storage House $186.40

See page "133." Replaced in December 1900.

Chimney $2388.74

See page "133." Replaced in February 1901. Less salvage old iron $75.00.

Coal Chute $824.43

See page "134." Replaced in 1895. Less value of iron in new Chute $316.00.

Store House and Fencing..... $289.80

Replaced in February 1899. No salvage. Page 135.

Pumping Engines $16,048.51

See pages 134-5. Davidson pumping machinery $13,-2166 200.00. Foundations for same $1500.00 Connections for same $2,443.51. Original total $17,143.51. Depreciation became complete by disuse and replacement Autumn 1900. Less salvage as follows: One direct acting air pump for pump well $100.00. Four cast iron "I" beams used to support blower $85.00. About 35,000 lbs. cast iron pipe at one cent, $350.00 Five 8 inch specials and two 8 inch valves $30.00, and the fair value of the rest of the machinery and fittings as old junk say $500.00. Total $1,095.00. Making a net depreciation of $16,048.51 as above.

Boilers $4,894.00

See page 136. Two additional boilers, &c. set in 1889, replaced January 1901, less salvage $685.00. See page 135. Two boilers $3,042.00. Replaced in 1895. Less salvage $445.00.

Distribution Pipes $16,063.38

See pages 137 to 148. Distribution pipes costing $140,102.68. Depreciation by disuse and replacement $20,079.61. Less salvage $4,016.23. Making net depreciations as above $16,033.38.

Tools, Teams, &c. $2,000.00

See page 152. Depreciation complete eight years from 1886 to say March 1894.

Lonsdale-Beaumont Real Estate Improvements..... $33,355.00

See page 164. Cost $35,700.00. Depreciation complete by non-use and discontinuance May 1900. Less salvage 3500 feet 12 inch cast iron pipe at $25.00 per ton less 27 cents per foot for taking up—67 cents including valves $2,345.00, making net depreciation as above $33,355.00.

Lonsdale-Beaumont Buildings and Machinery..... $14,070.00

See page 165. Original total cost $15,420.00. Complete
2167 depreciation by nonuse and discontinuance March 31st, 1900. Less salvage on pumping machinery and boilers $1250. Brick and materials and buildings estimated at $100.00, $1350.00, making net depreciation of $14,070.00 as above.

Summary.

Total cost of property upon which depreciation has culminated or completed by disuse, abandonment or replacement $106,314.27. Less salvage $10,327.23. Leaving net complete culminated depreciation of $95,987.04

Q. Now Mr. Nixon have you examined this statement of Mr. Wheeler being purely an estimate of cost—have you examined the estimates made by Mr. Wheeler and scrutinized them so as to be able to state whether or not any of them are excessive in quantity or in valuation, if so, will you please for the present name some of the matters in which you have found such excessiveness, if you have found it at all to exist?

Mr. CALDWELL: We object to the question as the witness has not qualified as a water expert.

Over-ruled.

A. I have examined a good many of the elements going to make up this construction account and find quite considerable overcharges or excessive charges, some of the principal of which is in the price of pipe.

Mr. CALDWELL: We object to the answer for if there are overcharges we are entitled to know exactly what the overcharges are.

Sustained.

A. I have found that pipe was charged from $25.00 to $35.00 a ton when the market was from $13.00 to $25.00. Earth excavation more than $1,000.00.

Mr. CALDWELL: I object to that statement.

2168 COMMISSIONER: How do you arrive at that?

A. My table gives it in dollars and cents.

COMMISSIONER: You have that?

A. I hav-n't it ready, but will file it shortly.

Mr. PICKLE: I will state to the Commissioner that we expect to present a table of our own, but for the present we are proving the incorrectness of the estimates of Mr. Wheeler and calling attention to them.

Mr. CALDWELL: We object to the statement of the witness "earth excavation more than $1,000.00" going into the record, as that is not legal testimony.

COMMISSIONER: That is not the correct way to prove it where he has it exact.

WITNESS: I can give it exact so far as I go, but I cannot give it all the way through.

Q. You might state your reasons, if they want them, why it is excessive?

A. Earth excavation $1,065.40; that is on earth excavations in buildings.

Mr. CALDWELL: Now we are entitled to know where it occurred?

A. Well this table which I will present will give you all the details.

COMMISSIONER: I think he can give them and you may cross examine.

A.—

Rock excavation	$2,444.43
Macadam walks	53.50
Sodding and grass seed	90.00
Fencing	130.00
Brick in cement	6,316.65
Face and trimming brick	16.25
Enameled brick	230.00
2169 Brick in lime mortar	1,166.90
Brick work	92.00
Cement concrete	2,364.00
Cement floors	821.15
Window sills and door sills	51.50
Windows and frames	40.00
Doors and frames	19.50
Wood floors	5.70
Stairs and railing	50.50
Lumber	415.60
Carpenter work	408.50
Painting and oiling	150.00
Hardware, nails, &c	23.00
Brick paved floors	73.50
Sheet steel and iron	168.79
Stand pipe at Filter Station	4,026.91
Stand pipe at Lonsdale-Beaumont Works	2,770.00
Reservoir on Reservoir Hill	20,000.00
Some miscellaneous items, guy ropes at River Station	143.40
Clean out door of abandoned chimney	2.00
Bridge to intake tower	215.24

These items aggregate in the neighborhood of $40,000.00. The balance of the construction items I hav-n't completed.

Q. What are the other construction items you hav-n't completed?

A. The pipe system, meters, valves, service connections, fire hydrants and some other items, engine settings and some suction and discharge pipes and steam connections.

Q. So if there are any over estimates on these last items they are not embraced in the items you have given?

—. No sir, but they are yet to be added.

Q. I will ask you Mr. Nixon whether you have, in addition to your experience in building, sought information, and state whether

or not you have done so extensively or not with reference to
2170 the prices of material, labor, &c.?

A. Yes sir, I have been quite industrious in that line, in talking with practical men to ascertain the cost of work, and what my experience has been in the cost of it. I have had more or less experience in the work covered by these items.

Q. Mr. Nixon, what do the books of the company show as to original construction, as to whether it was done by the company or by a contractor?

A. It was done by the company, in the name of the Knoxville Water Company, and by the Knoxville Water Company.

Q. Are the books so kept?

A. Yes sir.

Q. How does it appear on those books that F. M. Loweree was compensated for his part in the construction?

A. He was paid a regular salary at the end of the week, and at the end of the term he was paid an amount when his services ended. He operated the plant sometime after it was finished.

Q. Do the books show his salary run through the construction period?

A. Yes sir, and they show payments of his salary nearly every week, and sometimes twice a week.

Q. Do you remember the aggregate amount that was paid him in salary during the construction period?

Mr. CALDWELL: We object to the question as immaterial.

COMMISSIONER: I think he has a right to prove it.

A. $3668. and some cents is my recollection.

Q. Mr. Nixon, in the classification and fair construction cost of the physical plant submitted by Mr. William Wheeler in his deposition, and ratified by Mr. Kimball, they estimate the reservoir at $33,000.00 without details. Mr. Kimball states that about 40%, or $13,200.00 of this is assignable to excavation; Mr. Ludlow and the other experts, offered by the Water Company place the cost of this reservoir, or its reproduction on the 30th of Sep-
2171 tember 1902 at $27,000.00 to $28,000.00, and estimate 16,000 cubic yards of excavation at 50 cents per yard, making for excavation, according to their estimate, $8000.00. Lawson Irwin has testified in this case that he did this excavation and was paid for doing so by the Water Company. I will ask you if you have found, in your examination of the books of the Water Company an account between Lawson Irwin and the Water Company for this reservoir excavation work; if so, please state how much was paid, and if the account is a short one, simply copy it as a part of your answer?

A. I find such an account on the Construction records on pages "20" and "21" of the ledger. On page "20" the title of the account is "Lawson Irwin on Reservoir, Dr. and Cr." He is charged with $1233.76 in cash, and credited with the same amount on Reservoir account, Labor, to Lawson Irwin, $1167.75, and on page "18" Reservoir account, Debtor to Lawson Irwin, to balance account

$66.01, the two making the amount of cash that he was paid. I run 12½ cents through this amount and ascertained that the number of yards were 9864.

Q. Now, is there any other account between the Water Company and Lawson Irwin?

A. Yes sir, $151.51 for street account.

Q. On what page of the book?

A. That is on page "21."

Q. And it shows on what account?

A. Lawson Irwin on Street Account, Dr. and Cr.

Q. And the other shows on Reservoir account?

A. The other shows on Reservoir account.

Q. How does the cost of excavating that reservoir and the quantity of excavation correspond with your estimate of its cost?

Mr. CALDWELL: We object to the question as the witness is not qualified as a water expert, and he has not even shown that he examined the place him-.

2172 COMMISSIONER (to witness): Did you measure it?

A. Yes sir.

COMMISSIONER: I will allow him to answer.

Q. And you calculated the contents?

A. Yes sir, up and down, and I compared it with the other calculations, and had other men to assist me in the calculations.

COMMISSIONER: Other men who were engineers do you mean?

A. Yes sir; and it agrees substantially with my estimate, although I allowed 10,000 yards of excavation, while Lawson Irwin's amount would only aggregate 9864 yards. In my estimate I allowed 10,000 yards and Mr. Getaz figured it at 10,447 yards, and another calculation allowing only one-third for solid or undisturbed ground would be 14,147 yards, which evidently shows that one-third is not a sufficient allowance.

Q. Mr. Nixon, I will ask you to submit, if you have the same prepared, a table showing, as it appears on the books of the Water Company, the income of the Knoxville Water Company for the various years or periods of its existence, and the sources of the same, giving aggregates for each year as the same are shown by the Company's books, and also the aggregates of Operating Expenses, as shown by the books of the Company, and of interest paid, and of dividends paid, and of surplus?

Mr. CALDWELL: I hardly know what to say about that kind of a question, as Operating Expenses have been so repeatedly ruled out by the Master.

Mr. PICKLE: The books of the Company have been ruled out.

Mr. CALDWELL: That question has been ruled out time and time again, and as I understand it the Court has said that you could not go into the matter of Operating Expenses back of the year 1899.

2173 Sustained.

Mr. CALDWELL: We also except to the witness submitting statement as to Income Account back of the year 1899.

COMMISSIONER: The Master rules that the Income Account should follow the ruling as to Operating Expenses, and that previous to April 1st, 1899, the Operating Expenses and Income Account are not material, and are excluded.

Mr. PICKLE: I except to the action of the court in excluding those matters, and I offer to set out in the record the Income and Operating Expense Accounts for the years and periods prior to March 31st 1899. The Commissioner declines to permit the same to be set out in the record, and defendant's counsel excepts to the action of the Court.

Mr. CALDWELL: The Plaintiff excepts to the witness, William Nixon including in his tabulation and statement, items of any kind in the Water Company's business subsequent to September 30th 1902, which exception the Commissioner sustains.

Mr. PICKLE: And the defendant's counsel excepts and offers to show the complete income and operating expenses as shown by the books of the company for the last quarter of the calendar year 1902 and the first quarter of the calendar year 1903, which the Commissioner refuses to be done, or to be stated in the record; these two quarters being the last six months of the Company's fiscal year 1902 and 1903.

2174 A. The statement called for is as follows:

Net Income Accounts from Books of Knoxville Water Company.

	1899-'00.	1900-'01.	1901-'02.	First 6 mos. 1902-'03.	Total.
Water Tax, Gross	84483.31	93207.08	101346.91	52628.92	331666.22
Less Abatements and Rebates.	3802.67	4516.90	4829.66	1844.54	14993.61
Net Collections	80680.64	88690.18	96517.25	50784.54	316672.61
Taps	1776.60	878.45	235.84	1600.13	6051.02
Supplies	1292.83	1503.91	2646.89	244.41	5687.77
Total Income	83750.07	91072.54	101559.98	52629.08	329011.40

Operating Expenses, Interest, Surplus, Dividends, and Depreciation or Renewal Fund from Books of Knoxville Water Co.

	1899-'00.	1900-'01.	1901-02.	First 6 mos. 1902-'03.	Total.
Operating Expenses	31545.25	35775.89	37003.25	18232.20	122556.59
Interest	27553.61	30651.89	30070.57	14410.00	102886.07
Surplus	24451.21	24644.76	34485.76	19986.82	103568.55
Dividends	17700.00	17700.00	17439.17	Not made up.	
Depreciation or Renewal Fund	.....	19344.94	17046.59	" " "	

NOTE.—Operating Expenses examined 1899-'00, 1900-'01, 1901-'02 and first six months 1902-'03.

2175 Q. Mr. Nixon, state whether or not on the books of the Water Company there is an account between that Company and A. J. Hood & Brother on account of excavation of engine pit and

tunnel, and if so, make a copy of the same in answer to this question, or state the results?

A. On Construction Account of the Knoxville Water Company there is such an account on page "18" of the Ledger, marked "A. J. Hood & Brother on Pump Station" on which they are charged $1809.10 and credited by Pump Station labor for the same amount. This labor appears to cover 1475 yards rock excavation at $1.10, and 78 yards earth excavation at 30 cents, and $163.20 on suction tunnel, making a total of $1809.10.

The further taking of testimony was adjourned on application of the defendant until Tuesday morning September 1st 1903 at 9 o'clock a. m.

2176 TUESDAY, *September 1st*, 1903—2:30 p. m.

Continuation of direct examination of W. M. NIXON.

Examination by Mr. PICKLE:

Q. Mr. Nixon, in William Wheeler's classification of the fair construction cost of the Knoxville Water Company to March 31, 1901 and on page "24" of his deposition there appears an item under the sub-head of Plant and Improvements at river station in these words: "Rock excavation 1475 cubic yards at $1.87½; $2765.63"; and a little further down on the same page another item reading: Suction pipe tunnel through rock with brick lining 38.5 feet long at $20.00 per foot $770.00. It has been stated by the witness Hood in this case that A. J. Hood and Brother did this work of excavation, furnishing the tools for the same and the Company furnishing the powder for the excavation. In your last answer you state that the account of A. J. Hoon and Brother on Pump Station amounted to $1809.10 as shown by the books of the Water Company. Now I will ask you to state how much, in addition to the labor and tools for this rock excavation should be allowed for powder per cubic yard?

A. That is a pretty hard question, as it would depend largely upon the conditions that would be encountered. That date is soon after the use of dynamite come into practice, and taking all the conditions into account I would think that a pound of dynamite or three pounds of powder would be rather in excess.

Q. At about what cost per cubic yard for powder and dynamite?

A. Well powder at that time, my recollection is was about $2.00 a keg, which would be about 8 cents a pound. The price of dynamite I cannot remember exactly. Dynamite when first introduced in this country was worth 50 cents, and at that time it was perhaps worth 15 or 20 cents. That would be about 24 or 25 cents for powder, and dynamite at 20 cents, with caps and fuse would be about the
2177 same price; say 25 cents a yard I think would be a very liberal allowance.

Q. Do you mean to allow for dynamite and powder both, or one or the other?

A. Oh no, one or the other—25 cents a yard.

Q. Mr. Nixon, are you prepared to state whether or not this yard-

age, 1475 cubic yards for rock excavation engine house and pit is correct?

A. No sir I am not prepared to admit that that quantity is correct.

Q. Are you making an investigation of that now?

A. I am making an investigation on that and will report later.

Q. What about the price of $1.87 a yard for such work; is that reasonable or excessive?

A. I would regard it as excessive particularly when the contractor said he did it for $1.10, and particularly when that kind of rock work was being done in this country for from $.90 to $1.00.

Q. Have you examined the rock in that locality, and can you state whether or not they are of such quality as to be seen and easy of excavation?

A. It is the ordinary lime stone rock. I should think it would be easily drilled, blasted and wedged. It seems to be in layers.

Q. Now the charge of $20.00 per lineal foot for 38½ feet of suction pipe tunnel. I will ask you whether that charge is, in your opinion reasonable or excessive?

A. I consider that an unreasonable charge, and in my estimate allowed $10.00 as a very full price. In mining I have driven tunnels for $2.50 or $3.00 a yard and the brick lining couldn't be more than $4.00 a foot, so that $10.00 a foot I think would be a
2178 very full price.

Q. Have you at any time had any of this character of work done?

A. I have done that character of work since 1887 almost continuously, at one time and another.

Q. Now Mr. Nixon on pages 22 and 23 of your deposition you have given a list of items which you state to be overcharges aggregating in the neighborhood of $40,000.00, which you find in this classification and fair construction cost statement of Mr. Wheeler's. I will ask you whether those estimates of overcharge are based upon the amounts contained in Mr. Wheeler's deposition before or after adding 20% for interest, engineering services and contractors' risks and profits?

A. I used his figures before adding the 20%, and these overcharges are what I regard as excessive charges before the 20% was added.

Q. On page 22 of your deposition I notice an item of overcharge on account of rock excavation $2444.43. What kind of rock excavation does this item relate to?

A. Well it covers the items we have discussed, that is the 1475 yards excavation for the engine house & pit at river station, 38½ feet of tunnel at $20.00 a foot 308 yards of excavation for new engine house at river charged at $1.87½, and 300 yards excavation for boiler house at river station at $1.87½, and 10 yards for water-closet at $1.75, 101 yards for intake pipe and 135 yards for intake tower, the two last items, one being at $3.00 and the other at $3.50 a yard, making a charge of $5468.63. I thought that 90 cents for 2083 yards would be a fair price, .75 cents for 10 yards, $2.00 for 236 yards, and $10.00 a foot for 38½ feet tunnel, making $2739.20.

These items items occur on pages 23, 24, 46, 47, 61 and 94 of Mr. Wheeler's deposition.

Q. Now is the difference that you make between Mr.
2179 Wheeler's estimates and your estimates consist in quantity or prices or both?

A. In these comparisons it consists entirely in price, as I hav-n't accepted or passed upon the quantities, but will do so later.

Q. Omitting the smaller estimates on page 22 of your deposition I notice an item of overcharge on brick in cement amounting to $6316.65. I will ask you to explain how this item is ascertained and made up?

A. Well I have the list of brick on pages 23, 26, 58, 61, 62, 77, 90, 46, 58, 62, 64, 89, 93, 44, 54, 55, 57, 83 and 56 (of William Wheeler's deposition) covering various charges for brick and cement, aggregating 549200 brick at $13.00, $15.00, $18.00 and $25.00, and to this I have added 221600 brick charged as vitrified brick which makes an aggregate charge of $14024.65 which I have allowed at $10.00 as a fair price, which shows an overcharge or excessive charge of $6316.65 on this item. I have since discovered another item of 13000 brick charged at $15.00 which is on page 91 for the year 1900 for tool house, that I would reduce to $10.00 also which would be an overcharge of $65.00 more.

Q. I will ask you to state whether or not you are prepared to assent to the correctness of the number or quantity of brick laid in cement as stated?

A. I am not. I hav-n't passed upon that question. I have only passed upon the price of same. The number of brick seemed to be very much in excess of the purchases of brick.

Mr. CALDWELL: I object to the latter part of the answer of the witness if the Court please.

COMMISSIONER: I think those general statements are objectionable.

The WITNESS: They appear to be excessive, but that may
2180 be explained in the method of counting the brick, one according to the engineer's method and the other according to the brick manufacturers.

Q. I will ask you whether or not Mr. Nixon you have had any experience and what experience in the matter of brick work?

A. Well I have had considerable experience in brick work. I have had a job of something over ten millions of brick at the State Penitentiary that were laid in lime and cement, both hydraulic and Portland, and consisted of common, pressed, vitrified, face brick and trimming brick.

Q. Had you any assistance in estimating this work, if so, who aided you?

A. Yes sir, I was over this work with Mr. Getaz and Mr. Munding who are contractors in that line in this city and who are expected to be familiar with the prices and conditions that would be encountered in such construction in this city.

Q. On page 23 of your deposition Mr. Nixon, I find an item of

overcharge for brick and lime in mortar $1166.90. I will ask you at what prices brick in lime mortar were placed in the estimate, and at what prices they were allowed by you, and why?

A. On pages 23, 26, 27, 59, 60, 90 and 51 (of William Wheeler's deposition) there were various charges for brick in lime mortar at $13.00, $15.00, $18.00 and $20.00 per thousand; the total quantity of brick being charged is 195300 at $3717.50, and on one of these quantities, the first item, 75000 brick, Mr. Getaz and Mr. Munding reported that their measurements showed 73000, and I therefore deducted 2000 brick leaving 193300——

Mr. CALDWELL: We object to that as we don't know whether the witness is testifying upon their statements or what was contained in their depositions.

Over-ruled.

Exception taken.

2181 A. I reduced the quantity 2000 brick on their measurement and corrected the price to $8.00 on 231000 brick, $12.00 on 2300 brick and $15.00 on 35000 brick, and these figures make an aggregate of $2550.60, and show an overcharge or excess of $1166.90.

Q. Now Mr. Nixon you have given the different prices per thousand for laying brick in lime mortar. I will ask you to explain that matter?

A. Well I considered $8.00 as a fair price for brick laid in lime mortar in this town at that time, as I have found that a good deal of brick work was done at a great deal less than that. The 2300 brick item is composed of two small items of 1100 and 1200 brick for which I allowed $2.00 more on the thousand on account of being small jobs, and for the 35000 brick used in the erection of a chimney at the filter house I allowed $15.00 a thousand on account of the expense of elevating the brick—they had to scaffold it.

Q. On page 23 of your deposition you have noted as overcharges the following items: Cement concrete $2364.00 and cement floors $821.15. Will you give the prices charged for this work by Mr. Wheeler in his statement already referred to, and also the prices allowed by yourself, and the reason for the difference?

A. On pages 44, 54, 83, 94, 46 and 58 (Wheeler's deposition) are various quantities of concrete charged at $4.25, $4.50, $6.50, $7.50 and $9.00 per yard. On the items charged at $7.50 I allow $5.00 per yard and on those charged at $6.50 I allow $5.00 and those charged at $9.00 I have allowed $7.00, and by calculating these items on this basis makes an overcharge or excess of $2364.00 on concrete, and on cement floors and plaster on the various items on pages 23,

2182 52, 54, 56, 58, 60, 62, 83, 89, 90 and 91 are various charges for cement floors and plaster at $1.00, $1.50 and $2.00 per yard and 16 2/3 cents per foot. From my experience I have considered these prices excessive and allowed $1.00 a yard, which produces an overcharge of $821.15.

Mr. CALDWELL: We object to the answer because the items covered by it were paid for at different times through a period covering several years, and it does not anywhere appear that the witness has

knowledge of the prices of material and work of the kind testified about at any of those periods, or has ever engaged in work of that kind, certainly at those times at which he is testifying now.

Over-ruled.

Exception taken.

Q. Mr. Nixon have you had experience in concrete work, and have you knowledge and information on that subject, if so, to what extent?

A. I have had considerable experience in concrete work of this character and have investigated the cost of the constituents of concrete of this kind, and also the prices.

Q. Were you aided by anyone who lived in Knoxville during the period covered by these estimates?

A. Yes sir I conferred with Mr. Getaz on those items, and I took into consideration the prices allowed in the Chattanooga Water Company's case on such items; and I also took into consideration the bid for the Government Water Work Filter Plant at Washington a short time ago where 90 cents was bid for this kind of work.

Mr. CALDWELL: We object to the witness testifying as to the Washington Water Works "where 90 cents was bid for this kind of work."

COMMISSIONER: You may strike out the words "where 90
2183 cents was bid for this kind of work."

Q. On page 23 of your deposition I find several items as follows: "Windows and frames $40.00, Doors and Frames $19.50, Wood Floors, $5.70, Stairs and Railing, $50.50, Lumber, $415.60, Carpenter work, $408.50, Painting and Oiling, $150.00, Hardware, Nails, &c., $23.00." Now I will ask you to state in a general way how you arrived at these overcharges?

A. I based these valuations entirely upon the testimony of Mr. Getaz and Mr. Munding as fair prices for such materials and such work under the conditions at the time that this construction occurred.

Q. Had you yourself any knowledge of that sort of material and work; had you ever had it done?

A. I have had that kind of work done, and I have had considerable experience with it, but I based my values in this case more upon the testimony of these contractors.

Q. I will ask you to state whether or not those prices appear to you reasonable from your experience in such things?

A. They do. I based also the lumber reduction upon a comparison of the prices charged by the parties that furnished it.

Q. I find an item on page 23 of your deposition of brick paved floors $73.50, sheet steel and iron $168.79. Were those for material and work done in the erection of the buildings also?

A. I suppose so; I found it in Mr. Wheeler's statement on pages 25 and 63.

Q. How did you arrive at those items of overcharge?

A. Well I adopted Getaz and Munding's estimates and testimony on those two items, although I think they were a little too high, but I adopted it.

Q. Do you mean to say that you think the allowances made by them were——

A. — a little too much according to my experience in that
2184 kind of work.

Q. Did you yourself personally examine this work and materials Mr. Nixon?

A. No sir I didn't go into the coal chute at the river station.

Q. I mean of these estimates generally?

A. Oh yes I examined all the estimates.

Q. Did you examine the works or buildings?

A. Not all of them I didn't. These two items I did not. I went over the plant, but that coal chute had coal in it and we couldn't get at it.

Q. What I wanted to know was without removing any coal or water, did you go through the plant and examine it before you made these estimates?

A. Oh yes sir, and on the sheet steel & iron which is charged on pages 27 and 62 of Mr. Wheeler's deposition, I corrected these prices in accordance with my own information and experience with that class of material in the neighborhood of those times and also from the testimony in the Chattanooga Water case on this same kind of material.

Q. Mr. Nixon I will ask you whether these estimates of cost were made by you as of the dates when the work was stated to have been done in Mr. Wheeler's estimates?

A. Yes sir, I endeavored to estimate the cost as of the time it was charged, or approximately so.

Q. On page 23 of your deposition I find two items that I will classify. Standpipe at filter station estimated overcharge of $4026.91 and standpipe at Lonsdale-Beaumont works estimated an overcharge of $2770.00. I will ask you how you arrived at the cost of these standpipes and why you made these reductions?

A. The standpipe at the filter station is charged on page 45
(Wheeler's deposition) as of the year 1894 at 210000 pounds
2185 of plate at 5 cents, excavation and grading 80 yards at 30 cents, concrete 90 yards at $4.25, 11200 common brick in cement at $15.00, 1700 vitrified brick at $22.50, 6.32 yards cement grout at $13.00, 16 inch quarter-bend and flange fitting $60.00, making a total of $11054.91. From my experience and an investigation of the market at that time those plates could have been bought at 3 cents a pound, or about it, as was done at other jobs in this section, that is at Chattanooga, Nashville and Rockwood.

Mr. CALDWELL: We object to the statement of the witness in regard to the other places.

A. — and I therefore allowed, or figured the plates at 3 cents, rivets at 4 cents and the stairs and balcony at $160.00, the excavation at 20 cents, concrete at $3.00, common brick at $10.00, vitrified brick at $16.00, cement grout at $50.00 for the lot and the quarter-bend at $50.00, making a total of $7128.00, or an overcharge of $4026.91. On the Lonsdale standpipe charged on page 86 as of

the year 1900 at $6400.00, I figured the weight at 105000 pounds at 3 cents making $3150.00, the rivets at 4 cents, $80.00, the stairs at $50.00, excavation and foundation $350.00, making a total of $3630.00 or an overcharge of $2770.00.

Q. Mr. Nixon, have you had any experience in the business of erecting or having erected standpipes, or purchasing materials?

A. I have had some experience in the erection of metal tanks and metal work, and am familiar with metal work of that kind such as blast furnace shells, stoves, down-comers and ventilating stacks, and such work of that character. I have conferred with boiler men and iron workers since on this subject in investigating the value of this work.

Q. Have you in your estimate, in regard to these standpipes accepted the quantities shown by Mr. Wheeler as correct in making up your estimate?

A. Mr. Wheeler only gives the weight of one standpipe at
2186 210000 pounds and I found this about right. I made my calculation at about two hundred and nine thousand and some hundred pounds, and I accepted his weight as correct. I was unable to secure any specifications on the Lonsdale standpipe further then the thickness of one-half the plates, and figured it from that, and got some other gentlemen who were familiar in such lines to also figure the amount and the result reached was around about 105000 pounds, and I adopted that quantity. I did not examine the foundation plans for the quantities of excavation, and foundation work, but figured on the quantities given without an investigation.

Q. Then you have not verified the quantities?

A. I have not verified the quantities on these items, but have endeavored to verify the weights of the pipe.

Q. Now there are some smaller items on pages 22 and 23 of your deposition that I have not specifically asked about. I will ask you if they were arrived at in about the same method as the ones you have explained?

A. In about the same way, yes sir.

Q. Now you state these items aggregate in the neighborhood of about $40,000.00 and that was without the 20% added. With the 20% added as they enter into the $711392.57 item cost of this plant, according to Mr. Wheeler's statement, what would they amount to?

A. It would amount to 20% more.

Q. It would be about $48,000.00 overcharge on the $711392.57 estimate?

A. Yes sir.

Q. On page 21 of your deposition Mr. Nixon you have stated in answer to my question as to that part of the physical plant of the Knoxville Water Company had become extinct and gone out of the plant before the 31st of March 1901, which is estimated in Mr. Wheeler's deposition as a part of the plant at that time, at
2187 $95987.04. Now I will ask you whether that is the net amount after salvage, or the gross amount that had gone out?

A. That is the net amount after deduction of the salvage, the

gross amount being $106314.27, the salvage on which was reckoned at $10327.23.

Q. Now what became of that salvage that reduced the $106314.27 to $95987.04?

A. It went back into the plant or is still in the plant—back into construction or supplies on hand.

Q. Then in order to ascertain what remained of the plant estimated at $711392.57 by Mr. Wheeler on the 31st of March 1901, should the gross amount or the net amount of this completed depreciation be deducted?

A. I think the gross amount should be deducted.

Q. Why?

A. As the articles in this salvage had already been charged up in the $711392.57 in original construction, to deduct it in this case, is, in effect, allowing it to be charged twice.

Q. The salvage went back into supplies account or into reconstruction did it?

A. One or the other.

Mr. CALDWELL: We object to that.

Q. On pages 141 and 143 of Volume 3 of the plaintiff's evidence in this case Mr. Kimball states that all of the $3600.00 estimated value of the L.-B. Plant's real estate had gone out of use for the purpose of supplying water on the 3st of March 1901, except $600.00 for the lot on which the standpipe is situated. Mr. William Wheeler in his estimate of completed depreciation found between pages 166 and 167, Volume 1, states in his table of depreciation, or rather allows in his table of depreciation, upon which you have based your estimate, only $1000.00 for culminated depreciation on this
2188 real estate, leaving in the plant $2600.00. Now I will ask you whether to this $106314.27 this $2000.00 of real estate that had gone out of use for water purposes should be added?

A. Yes sir, I find that the situation; I find that all of this $3600.00 of real estate had gone into depreciation except $600.00, and as this statement of Mr. Wheeler only excludes $1000.00 of it, it should be amended by adding the additional $2000.00 which is omitted, I think in two other places of his testimony.

Q. Mr. Nixon is there embraced in this $106314.27 that has gone out of the plant as you stated, or had gone out on the 31st of March 1901, anything for the 7 hydrants that were placed in the old 10th Ward, or anything for the 16 hydrants including the 7 hydrants that had gone out of use and ceased to be used for fire purposes on the 31st of March 1901?

A. I never found anything of these items in this depreciation.

Q. Do you find included in this $106314.27 about one and a half miles of 4 inch and 6 inch pipe laid by the Lonsdale-Beaumont Water Company in the Beaumont Land Company's Addition?

A. This pipe is not included in the $106314.27. The only pipe included is the pipe that was taken up and replaced, as I understood Mr. Wheeler's statement.

Q. Is there anything in that $106314.27 for duplication of pipe, or excessive sizes of pipe?

A. I found nothing of the kind, either in the culminated or going depreciation.

Q. Is there anything for defects in the construction of the plant, the size of pipes or other defects?

A. Nothing defined in that way.

Q. On page 44 of William Wheeler's deposition in his fair construction cost of this plant I find under date of the year
2189 ending March 31, 1894, under sub-head "B" pumping machinery and appurtenances," three items aggregating $1040.00 for one Manning upright boiler, Hauling, uptake and damper. I find that on page 70 another boiler was put in under date of year ending March 31st 1896, I believe, which is estimated at $1230.00. I will ask you whether you have examined the plant, and state whether or not the first named boiler has been supplied by the second in the working of this plant?

A. On pages 44 and 55 of William Wheeler's deposition there is a Manning boiler, about 40 horse power charged, including foundations, settings and connections at $1140.00 set in 1894. On page 70 another boiler of about 50 horse power was placed in the same boiler house at a cost of $1025.00, without the 20%, and from my examination of the plant, this second boiler was put in as a substitute for the first, and has taken the place of the first. The Manning boiler is not used. It seems to be held as a reserve, and has no value except as a reserve.

Q. It enters into these estimates at $1140.00?

A. Yes sir.

Q. What was its value after being supplied by the new boiler?

A. I have had some experience with the Manning boilers, have bought some and used some of them, and they are an expensive boiler on fuel, and also a boiler that requires a great deal of work to keep up, which I see has been their experience with that boiler over there, from their bills for repairs on it, and as I have bought some boilers four times as large for $200.00, I shouldn't think this one is worth much more.

Q. I will ask you whether its standing there used or unused?

A. It is unused. I see no use for it except as a reserve in case the other one should break down.

Q. I will ask you whether or not it stands in this estimate
2190 at $1140.00?

A. It stands in the estimate at $1140.00 without the 20% added.

Q. What is it with the 20% added in the estimate?

A. It would be 20% more; it would be $228.00 more.

Q. Well the 20% enters into the amount of——

A. Into the $711392.57, yes sir.

Q. Mr. Nixon on page 96 of William Wheeler's deposition and constituting part of his estimate of the fair construction cost of this plant I find this item "Furnishing and setting pipe bridge at

Clinch Avenue East, $725.00" without further detail. I will ask you whether or not in the course of your examination of the books and vouchers of this company if you have found anything that throws any light upon this item and estimate, and if so, state what it is?

A. I found this charge, $725.00 for pipe bridge at Clinch Avenue East, and I also found a voucher in favor of the Wrought Iron Bridge Company for $465.37.

Q. This item is found under the date of the year ending March 31st, 1901?

A. Yes sir.

Q. What is the date of the voucher you refer to?

A. The 23rd. day of May 1900.

Q. Assuming that it is the same item Mr. Nixon, to what extent is it excessive allowing for the putting in of the bridge?

A. The difference between the voucher and the charge is $259.00, but allowing say $40.00 for erection, it would indicate an overcharge of $200.00.

Q. By whom was that bridge put in?

A. I do not know sir; the water company I presume, or it may have been put in by the contractor.

2191 Q. Mr. Nixon on page 95 of William Wheeler's estimate of the fair construction cost of this plant I find this item "Bridge and railings to tower including erection $300.00" without further details. This item is in the year ending March 31st, 1901 also. I will ask you whether in the examination of the books and vouchers of this company you found anything *the* throw any light upon this item, if so state what?

A. I found a voucher in favor of B. B. Dallas August 18th 1900 for making bridge 127.50, erecting $23.00, making total of $150.50, which I take was the same bridge.

Q. Under date of the year ending March 31, 1901, I find on pages 93 and 94 of William Wheeler's deposition, in his estimate of the fair construction cost of this plant, various items in relation to a Worthington Pumping Engine aggregating perhaps more than $18,000.00. Among these items is one for cartage, erecting &c., including removing Davidson Pumps $1500.00, which with 20% added as, is done in his estimate would amount to $1800.00. On page 153 of Elbert Wheeler's deposition found in Volume "2" of the plaintiff's evidence I find this statement. I will read the whole answer: "I think the question whether supervision by the manufacturer or the purchaser is determined largely by the ability of the purchaser or of those in his employ, is sufficient for the proper erection of the apparatus, and would say in this connection when we purchased the last Worthington Pumping Engine, the Worthington Company or Henry R. Worthington quoted a price of $1700.00 for its erection which we declined to accept, and we erected the same at our own expense, and by our own employés at a cost of less than one-half that amount, and with perfectly satisfactory results". I want to ask you if there is more than one Worthington Pumping Engine

in this plant, and whether the one referred to in the estimate and the one referred to in the answer are the same?

A. There is only one large Worthington Engine in the
2192 plant, and it must be the one that is referred to, as the Chief Engineer tells me he erected it, which would indicate that it is the same one.

Q. It is estimated at $1800.00 including the 20%, and Mr. Elbert Wheeler says it was put in at less than one-half that amount. What is your estimate of the actual and reasonable cost of putting it in?

A. I should estimate the cost, particularly when erected under and by the operatives, as was done in this case, I should say that it oughtn't to cost over $500.00.

Q. Now Mr. Nixon on page 92 of William Wheeler's deposition, Volume "1" of the plaintiff's evidence, in his estimate of fair construction cost of this plant I find under date of the year ending March 31, 1901 two additional boilers and appurtenances replacing those set in 1899, each 66 inches in diameter and 19 feet 4 inches long, with tubes 4 inches diameter by 18 feet long fitted with Hawley Downe Draft furnaces and with fronts, grates, &c., boilers and fittings complete f. o. b. Knoxville without Hawley attachments $1800.00, Hawley Downe Draft furnaces $1300.00, Setting same complete, including foundations $900.00, Steam pipe and water connections and coverings $650.00, Blower Engines and appurtenances including settings, &c., $900.00, Damper, Regulator, including valves and connections, $80.00, Uptake Flue and Damper connections, $250.00, aggregating without the 20% added $5880.00, with the 20% added as is done $7056.00. Now I want to ask you whether you have found anything in your examination of the books and vouchers of this company with reference to these boilers, which are here estimated at $1800.00 with 20% added making them $2160.00 in the estimate, if so please state what you have found?

A. I found a voucher dated October the 10th 1901 to E. Hodge and Company of Boston, two 66 in. by 19 feet 4 inch boilers
2193 with 4 inch flues at $1240.00. I also found a voucher in favor of the Hawley Downe Draft Company for furnace of $1275.00.

Q. Have you found anything with reference for the Uptake flue and damper connections, including smoke pipe?

A. I found a voucher in favor of Mr. Dallas, dated March the 5th 1901, boiler work, smoke fronts, and connections $118.37. I found a voucher in favor of B. F. Sturtevant and Company for a 100 inch blower for induced draft of $690.00.

Q. What is your opinion as to the items on this account as to whether reasonable or unreasonable, Mr. Nixon, so far as the foundations are concerned, the steam piping and water connections, the former estimated at $900.00 the latter at $650.00?

A. I regard them as very excessive but I hav-n't as yet secured the measurements to make a close estimate. $900.00 for setting a pair of boilers of this character and $650.00 for steam and water connections and $250.00 for smoke connections and $210.00 for installing

this fan, seems to be charged at very excessive prices, but I hav-n't yet secured the measurements, but will have them later.

Q. Mr. Nixon is the boiler, furnaces, &c., described on page 92 of Mr. Wheeler's deposition the same as described in the voucher you have spoken of?

A. They appear to be the same. They are of the same dimensions, of the same description and about the same date. It was the last boilers that were put there; they are the newest boilers that are there and the only boilers of that size.

Q. Are there any others in the plant that would correspond?

A. There is another pair of boilers in the plant but they are smaller and older.

2194 Q. Now Mr. Nixon I have asked you about the special items of machinery entering into this plant and for such explanation as you found in the books and vouchers. I will ask you whether or not you have completed your investigation as to the cost of machinery and setting the same so as to cover the whole?

A. I have not. There are several items that I hav-n't completed my examination on.

Q. These boilers were bought at Boston I believe?

A. The vouchers show they were bought at Boston from the same parties that the filter plant standpipe was bought from.

Q. I will ask you whether that is a market from which purchases can be made as cheaply and freight rates secured as cheaply for such articles as from near-by markets and where such things for this country are ordinarily bought?

A. I shouldn't regard Boston as a good market for this character of material, as it is made up of material that is secured from Birmingham, Alabama and Pittsburg, Pennsylvania. By going to Boston for such machinery would be going a long distance out of the way, in my opinion.

Q. How about the freight rates?

A. I think that the freight rates from Boston would be a great deal higher than from Pittsburg, Chattanooga or Birmingham.

The further taking of depositions was adjourned until Thursday, September the 3rd, 1903, at ten o'clock a. m.

2195 THURSDAY, *September 3rd*, 1903.

The further taking of depositions was resumed at 9:10 o'clock a. m.

Continuation of direct examination of W. M. NIXON:

Examination by Mr. PICKLE:

Q. Mr. Nixon, the Lonsdale-Beaumont Water Plant was conveyed to the Knoxville Water Company on the 1st of January 1900. It appears to have entered into the estimate of fair construction cost of the Knoxville Water Plant made by Mr. William Wheeler in this case at about $120,000.00. I want to ask you to state how much of this plant, or the value of this plant as it entered into this estimate of Mr. Wheeler's is ciphered out as having gone out of the plant on the

31st of March 1901, and of what it consists. Give the gross amount and the net amount less salvage on those items?

A. Mr. William Wheeler's statement of depreciation, or culminated depreciation includes $52,120.00 of this plant as having gone out by replacement and disuse in May 1900, consisting of rights-of-way $500.00, Water Rights, $500.00, Improvements of real estate, consisting of gravity pipe line, clay and iron, collecting basins at springs and water supplies, reservoir, and other improvements of that character amounting to $35,700.00. On improvements, buildings, machinery, pump station, engines, boilers, buildings, $15,420.00. On those two items he figures salvage on 3500 feet of cast iron pipe $2345.00, and machinery sold $1350.00.

Q. Now is there included in this item of $52,120.00 the $2,000.00 of real estate that ceased to be used for water purposes?

A. No sir that is not included in this statement; that is in addition.

Q. Is there included in this $52,120.00 the mile and a half of 4 and 6 inch pipe laid in the Lonsdale-Beaumont Addition that
2196 had become useless?

A. No sir I find no mention of this item.

Q. About what, at the prices at which Mr. Wheeler ciphered the pipe in this plant, to-wit: $25.00 a ton, would this mile and a half of pipe and its laying amount to, estimating it at about one-half of each kind, that is 6 inch and 4 inch?

A. Something in the neighborhood of $4,000.00.

Q. Now Mr. Nixon going to the pipe entering into this water system and first the cast iron pipes; I will ask you to state what amount or quantity in feet of cast iron pipe enters into the estimate of the fair construction cost of this plant on the 31st of March 1901 as shown by the estimate of fair construction cost made by Mr. William Wheeler, giving each size separately, and the cost of same as estimated by him with and without the 20% added?

A. I find from Mr. Wheeler's estimates that the total number of feet of pipe laid up to March 31st 1901 aggregate 300,084.7 feet at a cost of $240,164.90. The following are the sizes in lengths of feet an aggregate cost of each size.

3 inch	21088.6	feet	$7036.06
4 "	53830.6	"	25404.55
6 "	109540.0	"	70999.45
8 "	37238.4	"	32099.36
10 "	23684.0	"	25737.37
12 "	34601.2	"	41269.70
14 "	7607.8	"	12760.33
16 "	9055.9	"	17285.87
18 "	714.9	"	1473.63
20 "	2723.3	"	6549.58
24 "	.....		.....
	300,084.7		$240614.90
With the 20% added would be.....			48122.98
Which added would make an aggregate of.....			$288737.88

2197 Q. Now is this pipe embraced in the estimate of fair construction cost made by Mr. Wheeler with or without the 20 per cent. added?

A. It is made up without it and the 20 per cent. is added to it; so that it is included as a part of the $711,392.57; this amount computed with the 20 per cent. added.

Q. Now taking the item of $240614.90 which is the cost of the pipe and laying as I understand without the 20 per cent. added. Have you ascertained how much is allowed in his estimate for the pipes and how much for the laying, if so, state how much is calculated for it?

A. I have figured the laying at the prices given by Mr. Wheeler, and find the same amounts to $74507.55. Deducting this amount from the pipe laying gives the net cost of the pipe at $166,107.35.

Q. Now Mr. Nixon how much of this cast iron pipe is shown by Mr. Wheeler's estimate of fair construction cost, to have been taken up, and the quantity and sizes, and the cost of same as originally laid with and without the 20 per cent.?

A. I find that 12926.2 feet have been taken up, which cost as estimated by Mr. Wheeler $7092.69 and consists of—

3 inch	224.6	Feet at	33	Cts.....	$74.12	
4 "	7721.5	" "	47	"	3629.10	
6 "	4719.1	" "	65	"	3067.41	
8 "	24	" "	86	"	20.64	
10 "	4.3	" "	1.08	"	4.64	
12 "	208.0	" "	1.20	"	249.60	
16 "	24.7	" "	1.91	"	47.18	
						$7092.69

making as before stated a total of 12926.2 feet at a cost of $7092.69, and 20% of this amount would be $1418.54.

2198 Q. What was the quantity of cast iron pipe remaining in the plant as shown by Mr. Wheeler's estimates, after deducting the amount taken up on March 31st 1901 outside of the supply account?

A. The number of feet remaining in the plant on March 31st 1901 aggregated 287158.8 feet as per Mr. Wheeler's estimate, but per Mr. Kimball's and Mr. Donaldson's certificate on the Pipe Book, the aggregate was 287149.2 feet of cast iron pipe, there being some little discrepancies that aggregate 10 feet I believe, which probably arose from misprints or mistaken figures, or something.

Q. Now what is the cost of this pipe and its laying, as remains in the ground. Have you made this out; if so state it with and without the 20% added?

A. This aggregates $233,562.16 and is made up of the following items:

20 in.	2723.3 ft.	at	$2.40.....	$6549.58
18 "	714.9 "	"	2.06.....	1473.63
16 "	9031.2 "	"	1.91.....	17249.59
14 "	7607.8 "	"	1.67.....	12760.33

12 in.	34383.2 ft.	at $1.20	.....	$41259.84
10 "	23680.4 "	" 1.08	.....	25574.83
8 "	37214.4 "	" .86	.....	32004.38
6 "	104820.9 "	" .65	.....	68133.58
4 "	46109.1 "	" .47	.....	21671.28
3 "	20864 "	" .33	.....	6885.12
Total	287149.2 "		.....	$233562.16

Twenty per cent. added would be $46712.43.

Q. Have you separated the amount at which the pipe is estimated that remains in the plant according to Mr. Wheeler's estimate of fair construction cost from the laying of the pipe; if so please state these amounts separately with and without the 20% added?

2199 A. It is as follows:

Cost of Laying Pipe in Ground on March 31, 1901, *per Messrs. Kimball's and Donaldson's Certificate on Pipe Books of the Company Using Mr. Wm. Wheeler's Rates.*

20 inch	2723.3 feet	.....	$2042.48
18 inch	714.9 "	.....	464.68
16 "	9031.2 "	.....	5238.10
14 "	7607.8 "	.....	3347.43
12 "	34383.2 "	.....	12377.95
10 "	23680.4 "	.....	7104.12
8 "	37214.4 "	.....	9675.74
6 "	104820.9 "	.....	22012.39
4 "	46109.1 "	.....	7377.45
3 "	20864.0 "	.....	2503.68
	287149.2 "	.....	$72144.02
20 per cent. added		.....	14428.80

Value of Pipe as stated by Mr. Wheeler	$233,562.16
Less cost of laying	72,144.02
Cost of pipe alone	$161418.14

Q. Have you the amount of pipe that remained in supplies account on the 31st of March 1901; if so please give the same with the sizes as shown by the books of the company?

A. It is as follows:

From Stock Account on Hand in Supplies Account March 31, 1901.

Cast iron pipe:

3 inch	541 feet	at	17	cents	.....	$91.97
4 "	1566 "	"	23	"	.....	360.18
6 "	729 "	"	35	"	.....	255.15
8 "	422 "	"	49	"	.....	206.78
10 "	65 "	"	67	"	.....	43.55

12 inch	3327	feet	at 87	cents	.....	$2911.13
14 "	168	"	1.10	"	.....	184.80
16 "	102	"	1.30	"	.....	132.60
18 "	19	"	1.55	"	.....	29.45
20 "	144	"	1.82	"	.....	262.08
	7083	"			.....	$4477.69

Q. Mr. Nixon how does it appear from these estimates that pipe taken up was disposed of?

A. There is no record of how it was disposed of. It was taken up and valued at so much salvage, and no further record that I am able to find as to what was done with it.

2200 Q. If it was returned to the plant at what price was it returned to the plant?

A. The full price; the same as new pipe, if it went in again, so far as the records show. I have seen no allowance on estimates of pipe construction for the use of second hand pipe or pipe at a reduced price.

Q. I will ask you to state whether or not all pipe that went into these estimates was put in at the same price for each year, or in other words whether there was any reduction made for second hand pipe was put in in these estimates?

A. The pipe for each year as stated was figured on the basis of so much per ton and apportioned per foot in that way. I have seen no explanation of any reduced price on account of second hand pipe; in fact the records all indicate that all laying was done with new pipe.

Q. You mean that it was new pipe or laid at new pipe prices?

A. Laid at new pipe prices.

Q. In the contract of the 17th of November 1893 between the Knoxville Water Company and Wheeler & Parks which is an exhibit to the deposition of William Wheeler in this case, it is stated under section 8 subsection 38 that Wheeler & Parks were to receive service mains of 3 inch pipe, or of old 4 inch pipe relaid 40 cents, when they were to receive as therein shown 65 cents for 4 inch pipe laid. Do you find any place in these estimates of fair construction cost by Mr. William Wheeler where any reduction is made for the laying of 3 inch pipe or 4 inch pipe relaid to this 40 cents basis?

A. I don't recall any.

Q. In subsection 39 it is stated that Wheeler & Parks should — "any old pipe which may be taken up where other pipe is required to be substituted therefor. Do you find any allowance anywhere for the difference between new pipe and this old pipe in these estimates of Mr. Wheeler?

A. I can't say that I have. I find an entry on the books that indicates some trade of that sort, whereby there was an exchange of some pipe and a difference of $800.00 allowed.

Q. I am asking you what you found in the estimate?

A. I don't find anything on old pipe except salvage price where it is taken out.

2201 Q. Have you a statement of the actual cost of all the pipe including special and fittings at their purchase prices f. o. b.

cars Knoxville that enter into the construction of this entire plant, including the North Knoxville and Lonsdale-Beaumont plants, if so will you please furnish the same to the stenographer?

A. Yes sir I have such a statement.

Mr. CALDWELL: We desire to except to the purchases as made by Wheeler & Parks contained in this statement.

COMMISSIONER: Let me ask the witness a question. Mr. Nixon where did you get your information as contained in the above statement?

A. From the books of the Chattanooga Foundry and Pipe Works.

Mr. PICKLE: Did you personally examine the books and accounts of that company?

A. Yes sir I took these amounts off the books of that Company. I spent a week or ten days on the books of that company in making off these various accounts.

Mr. PICKLE: And it shows those purchases?

A. Yes sir.

Mr. CALDWELL: I object to that. That is not evidence in this case.

Mr. PICKLE: Those were the old books of the Chattanooga Foundry and Pipe Works?

A. Yes sir; they went through the Richardson block fire and the backs were burned off of the books and they were rebound. They were given to me by the Chattanooga Foundry and Pipe Company to examine. In fact I examined all the books from 1882 forward until they sold out to the American Pipe and Foundry Company.

2202 Mr. PICKLE: Those books, kept by that company contained their sales?

A. Yes sir.

COMMISSIONER: I think it is clear that the books would have to be here for the parties on the other side to cross examine the witness from.

Mr. PICKLE: Then Mr. Commissioner I will ask you to give me a subpœna to bring in the books for if the books are evidence I am entitled to have them here.

The WITNESS: All my information don't come from those books alone, but it comes from various sources.

COMMISSIONER: I will exclude the testimony for the pre- and will see if I cannot work out, in some way, how you can get the evidence. It seems to me that that is the way for you to get it. Of course if he had the books in court he could read from them and explain them to us.

Mr. PICKLE: Who has charge of those books Mr. Nixon?

A. Mr. Giles has charge of them, he is the general manager of the United States Cast Iron Pipe and Foundry Company.

COMMISSIONER: For the present this question cannot be answered by the witness.

The WITNESS: I desire to explain how I secured this statement; I made this statement by first going through the books of the Chattanooga Foundry and Pipe Works and getting memoranda—taking off memoranda of all pipe furnished to the Knoxville Water Com-

pany on its various orders and accounts running through several years, and I brought that memoranda to Knoxville and checked it on the books of the Knoxville Water Company for cor-
2203 roboration, and it corroborated with it down to a very few dollars.

COMMISSIONER: What books did the Chattanooga Foundry and Pipe Works have that showed that?

A. Ledgers and Journals.

COMMISSIONER: I thought this pipe was sold to the contractors?

A. No sir there is an account with Wheeler & Park.

COMMISSIONER: Is it all charged to Wheeler & Parks?

A. Oh no not all of it, the bulk of the pipe was sold to the Knoxville Water Company. It was charged to the Knoxville Water Company on the books of the Chattanooga Foundry and Pipe Works and all of it except two accounts which is on record on the books of the Water Company here except those two purchases.

COMMISSIONER: Then anything you can prove by the books of the Knoxville Water Company, you may do so.

Mr. CALDWELL: Without regard to what Mr. Nixon's further statement may be, we except to the testimony from any source in regard to purchases made by Wheeler & Parks, because it has already been held repeatedly that this controversy shall not extend to Wheeler & Parks.

(The WITNESS:) I also took the account of George W. Sturtevant, Jr. Contractor, who purchased and put the pipe into the Lonsdale Beaumont plant, and corroborated that by a record in the Chancery Court here in a suit between the Chattanooga Foundry & Pipe Works and the Beaumont Water Company, in which an itemized account is furnished, sworn to and decreed upon.

Mr. PICKLE: Mr. Nixon, give the statement in answer to the last question?

2204 The COMMISSIONER: You may give what you ascertained from the books of the Knoxville Water Company or the Lonsdale Beaumont Water Company, but no other.

A.—

"Chattanooga Foundry and Pipe Works..... (Per Loweree Adm'n)	$36830.52
Cincinnati and Newport Pipe Company..... (Per Loweree Adm'n)	977.87
Chattanooga Foundry and Pipe Works..... (Per Martine Adm'n)	10965.35
Dennis Long and Company ..... (Per Martine Adm'n)	3717.17
Chattanooga Foundry and Pipe Works..... (1891 to 1897)	3937.66
South Pittsburg Pipe Company ..... (Per Martine Adm'n)	1268.88
American Pipe and Foundry Company.....	3299.12
F. K. Bowes and Company.....	1082.22
United States Cast Iron Pipe and Foundry Company..	14098.42
And other purchases	4918.14

which is all of my table except two items.

Q. Well you have not embraced West Knoxville, which you got from Dr. Coile's deposition?

A. I hav-n't seen Dr. Coile's deposition.

Q. Have you a statement of purchases made by Geo. W. Sturtevant and the Lonsdale-Beaumont Company showing the pipe that went into that plant prior to its purchase by the Knoxville Water Company; I mean the cast iron pipe?

A. Yes sir I have such a statement.

Q. From what source did you obtain that Mr. Nixon?

A. First from the books of the Chattanooga Foundry and Pipe Works, and second from the records of the Chancery Court in the case of the Chattanooga Foundry and Pipe Works against the Lonsdale-Beaumont Water Company.

Mr. PICKLE: May it please the court the only statement upon which Mr. Wheeler based his estimate on quantity of pipe was taken from depositions, and we think we should be allowed to do the same thing.

2205

COMMISSIONER: Whatever the witness can prove by books that have been introduced here in evidence, he may do so, but what is not in evidence, he cannot.

Mr. PICKLE: The defendant excepts to the action of the Master above indicated and offers to prove the amount of pipe actually purchased and put into this plant by the witness and offered to have the witness state the amounts, which the Master refuses to permit to be done, stating that he would examine the custodian of the books of the Pipe Company to show the contents of the books, all of which is over-ruled by the Special Commissioner and appeal prayed.

COMMISSIONER: The Commissioner desires to add to the objection as stated the correction that the testimony is not excluded in and of itself, but because the witness had, in the judgment of the Commissioner, not qualified himself as being informed to testify on the subject.

Q. Assuming the footage of pipe figured into this plant by Mr. William Wheeler in his statement of fair construction cost to be correct for the present, I will ask you if that pipe is figured into the plant at fair market prices at the dates at which it was put into the plant?

A. From my knowledge of the market at those times, I think it is figured at prices far in excess of the market prices.

Mr. CALDWELL: I object to that.

A. The most of this pipe was figured at $35.00, $32.00, $25.00 and some at $20.00 through a period of 20 years. Pipe has been a good deal lower than that during those years.

2206

Mr. CALDWELL: We object to the generality of the statements.

COMMISSIONER: I will leave it in.

Q. Well, now, Mr. Nixon, I will ask you what was the fair price of cast iron pipe on the 31st of March, 1901, delivered f. o. b. cars

at Knoxville, bought in such quantities as would be required to build a plant, and state what reasons you have for fixing that price?

Plaintiff objects to the question because it does not specify sizes of pipe, nor requires the witness to show exact information or to make specific statements as to the price of various sizes and weights of pipe.

Over-ruled.

Exception taken.

A. From my information on this subject I find that Mr. Kimball, Superintendent of the water company, who is corroborated by the books of the water company, shows that pipe was bought about this date from $22.00 to $23.00. From my experience in the purchase of pipe some months before that, it cost $13.00 at Chattanooga and $14.00 delivered at Nashville. In the construction of the Mobile Water Works in 1900——

Mr. CALDWELL: We object to the statement in regard to that.

Q. What time was this sale you speak of?

A. In the year 1900 I believe it was.

COMMISSIONER: Then go ahead.

A. The price of pipe at Chattanooga was $13.00 and at Mobile $14.80, the freight being $1.80 a ton. I got this information from the sales agent of the United States Foundry and Pipe Company and from Mr. Gill, the contractor who built the plant.

2207

Plaintiff excepts to the foregoing statement that some kind of pipe, not specifying what kind, costs certain prices at Chattanooga and Mobile and nothing is shown in the testimony to relate said pipes to the kinds of pipe used by the Knoxville Water Company at that time.

Over-ruled.

Exception taken.

Q. Now, Mr. Nixon, what difference does it make as to purchases or price of pipe when bought in small quantities such as car loads and in larger quantities to build a plant?

A. I suppose it would make a very great difference.

Mr. CALDWELL: We object to what the witness "supposes."

A. A large contract would give better prices, better freight rates and better competition, and would be at a much lower price than in a single car load purchase.

Q. Suppose the price to be, $22.00 or $23.00 per ton by the car load delivered free on board cars at Knoxville about March 31st 1901, about what would be the wholesale price of pipe for a plant?

A. I should say from $3.00 to $5.00 a ton less.

Q. Now, I will ask you to state what is the difference in the price as regards the size of pipe?

A. Small pipe, 3 inch pipe is generally from $1.00 to $3.00 higher per ton, and from 4 inch up it is generally the same price.

Q. Mr. Wheeler, in making his estimates of the fair construction cost of this plant has separated his estimate for the North Knoxville distribution pipes and appurtenances from that of the remainder of the plant for the period ending December 31, 1891, as shown
2208 on pages 35 and 36 of his deposition, and for the period ending March 31, 1893, as shown on page 39 of his deposition, and for the year ending March 31, 1894, as shown on page 43 of his deposition. Now in a contract between the Knoxville Water Company and Wheeler & Parks dated 26th of August, 1892, which is an exhibit to the deposition of Mr. Kimball, on one of his cross-examinations in this case I find it recited that Wheeler & Parks had laid in North Knoxville 27000 feet of pipe up to that date. Now I will ask you to turn to page 35 and to page 36 of the deposition of Mr. William Wheeler and state how much pipe is shown to have been laid and that enters into his estimate as having been laid in North Knoxville in 1891, and how it exceeds the 27000 feet which this contract recites as having been laid?

A. His deposition shows that there had been laid in North Knoxville in 1891-2, 30242.6 feet of cast iron pipe, and in 1892-3 427 feet of cast iron pipe and 229.9 feet wrought iron pipe, and in 1893-4 1136.5 feet cast iron pipe and 349 of wrought iron pipe which appears to make a total of 32385.8 feet, or 5385 feet in excess of the 27000 feet named in the contract.

Q. How much is the pipe laid in 1891 and in 1892, the whole of it, in excess of the 27000 feet as it enters into Mr. Wheeler's estimates?

A. 3900 feet in excess of the estimate including those years. The pipe laid in 1891-2 of cast iron and wrought iron piping aggregates 30,900.3 feet which is 3900 feet in excess of the contract quantity named.

Q. Mr. Nixon, Mr. Wheeler states in his deposition that he obtained quantities of pipe from an examination of depositions in a Chancery case at Knoxville, being the depositions of M. Nicholson and A. H. Martine. I will ask you if you made an examination of the same depositions?

A. I have examined the depositions of Mr. Nicholson and
2209 Mr. Martine in the Chancery case.

Mr. CALDWELL: We except to the foregoing question.

Q. State the result of your investigation as regards the quantities of pipe?

Mr. CALDWELL: I except to the question on the ground that I did not ask Mr. Wheeler in my direct examination to look to the depositions, but that was brought out on cross-examination.

Sustained.

Defendant by counsel excepts to the Commissioner's action, offering to show the results of his investigation of the depositions referred to by Mr. Wheeler on pages 580-581, Volume "2" of his deposition which the Master refuses to permit to be done.

Q. Mr. Nixon, have you examined the description of the pipe in the Moses Lane plan and the McDonough plan and compared them?

A. Yes, sir.

Q. What is the difference between the tonnage of the pipe?

A. Three hundred tons.

Mr. CALDWELL: We object to the question as incompetent.

Mr. CALDWELL: (To the witness) Have you seen the Moses Lane plan?

A. No, sir.

Q. Have you seen a statement of the pipe that was required by that plan?

A. Yes, sir, that is what I referred to, the list of the pipe required by the comparative specifications, in some of these depositions, and there is three hundred tons difference in the same length of pipe.

COMMISSIONER: I will allow the answer to remain.

Q. Mr. Nixon, in the contract of the 17th of November, 1893, between the Knoxville Water Company and Wheeler & Parks
2210 made an exhibit to Mr. Wheeler's deposition in this case, under section 8, subsection 38 it is provided as follows: "And for furnishing and laying all additional supply and distribution mains, under Section V hereof, including therewith all necessary gates, gate boxes, hydrants, special castings, rock excavations, and repair of streets incident thereto, the party of the first part agrees to pay and the party of the second part agrees to receive, in equal amounts of both Preferred and Common Stock of the said Knoxville Water Company, at the following rates, to-wit:

For 20 inch pipe and appurtenances.....						$2.90	per	lineal	foot.
"	18	in.	pipe	and	appurtenances.....	2.50	per	lineal	foot.
"	16	"	"	"	"	2.15	"	"	"
"	14	"	"	"	"	1.80	"	"	"
"	12	"	"	"	"	1.45	"	"	"
"	10	"	"	"	"	1.15	"	"	"
"	8	"	"	"	"	1.00	"	"	"
"	6	"	"	"	"	.80	"	"	"
"	4	"	"	"	"	.65	"	"	"
"	Service mains of 3 inch pipe, or of old 4 inch pipe relaid.....					.40	"	"	"
"	Setting hydrants on old pipe.....					70.00	each.		

The face value of the amounts thus determined to be paid to the party of the second part in the Preferred Stock of the said Knoxville Water Company, together with an equal amount of the Common Stock of said Company." Now I want to ask you what was, at the date of this contract and for two or three years following, the fair price for setting these hydrants for which Wheeler and Parks were allowed by the Knoxville Water Company $70.00 each, to be paid for in $70.00 of Preferred Stock of the Company bar-ing 6 per cent. each and an equal amount of common stock making $140.00 each?

2211 Plaintiff excepts to the question as calling for expert testimony in water works cases and this witness has not qualified as an expert in water works cases.

Over-ruled.

Exception taken.

A. The prices for setting hydrants enumerated throughout this record is $32.00, $37.00 and $45.00.

Q. What is the price at which these particular hydrants are estimated in Mr. Wheeler's estimate of fair construction?

A. As well as I can locate them it is $32.00.

Q. What was the fair price independently of Mr. Wheeler's estimate of putting in these hydrants, including the value of the hydrant?

A. I should say from $25.00 to $27.00, set.

Q. I will ask you whether or not the books of the company show that upon the Preferred Stock issued in payment of these hydrants 6 per cent. interest was paid annually from the date of its issuance?

A. The books show that interest was paid regularly on Preferred Stock.

Q. Now I will ask you as to the prices of the pipe, taking each size separately, whether these prices are fair and reasonable prices, and if not, what would be fair and reasonable prices for laying these different sizes of pipe, and your reasons for same?

Plaintiff excepts to the question as calling for expert testimony in water works cases, and this witness has not qualified as an expert in water works cases.

Over-ruled. Exception taken.

A. These prices are from 20% to 25% in excess of Mr. Wheeler's estimate. For instance where $2.90 is charged for 20 inch pipe, his estimate is $2.40, and I should say that these prices are fully

2212 excessive to the extent of from 20% to 25% and in some instances 30% on pipe.

Q. They are that much over Mr. Wheeler's estimates?

A. Yes sir; and they are too high.

Mr. CALDWELL: We except to this last statement of the witness as purely gratuitous and uncalled for by the question.

Sustained.

Q. Now Mr. Nixon, going to the estimate of Mr. Wheeler and other experts of the replacement of this plant on September the 30th 1902, the experts have adopted as a basis for cast iron pipe in the plant 325000 feet. How much, if any, is this in excess of the quantity of pipe that was in the plant on the 31st of March 1901?

A. Some 40,000 feet, as there were 287149.2 feet in the plant on March the 31st 1901.

Q. Do you mean to state that there was that amount in the plant on the 31st of March 1901 according to Mr. Wheeler's estimate?

A. That amount, according to Mr. Kimball's certificate and the pipe book of the company.

Q. The price of pipe at which this replacement is estimated, is placed at $32.00 by Mr. Ludlow on page 22 Volume "3," and by Mr. Hider from $31.10 to $36.60 on page 96, Volume "3," and by Mr. Johnston at $32.00 on page 35 of Volume "3." Now I will ask you how that compares with the price of pipe on the 31st of March 1901?

A. It is from $10.00 to $12.00 per ton higher; possibly more.

Q. This estimate of replacement on September 30, 1902 includes the construction accounts of 18 months after the 31st of March 1901?

A. I so understand.

Q. Have you an idea about what those construction ac-
2213 counts amount to?

Objected to by counsel for plaintiff as incompetent.

Q. I mean, have you calculated that?

A. I hav-n't investigated that subject; it is beyond our date.

Q. Now going to the meter account in this estimate of replacement. How many meters were in the plant on the 31st of March 1901, and their estimated cost, with and without the 20 per cent., and also the estimated cost of meter boxes as of that date, with and without the 20 per cent?

A. I don't seem to have the book with me that contains that information, but I think 284 had been set and 8 had been removed.

Q. What was the number of meters entering into this replacement on the 30th September 1902, and give their estimated cost with and without the 20 per cent., as they enter into that cost of replacement, and also as to meter boxes?

—. On page 542, Vol. 2, Mr. Wheeler says "Meters, boxes and connections 1407 meters and boxes at an

aggregate cost of	$31575.50
Add 20 per cent	6315.10
Total	$37890.60

Q. State what is the difference between the estimate of Mr. Wheeler on the meters and meter boxes as of the 31st of March 1901 and September 30th 1902?

A. Mr. Wheeler charges on pages 42 to 98 284 meters

as costing		$5550.75
And 8 meters taken out for which he allows		367.00
Which leaves charged		$5183.75
At average purchase prices of 1364 meters furnished by Mr. Kimball, these meters amount to	$4397.97	
Cost of setting same	207.00	
		$4604.97
2214 A. 283 meter boxes charged at $8.00		$2264.00
Cost of same per Mr. Kimball		1556.50
Over-charge		707.50

Difference on meters and boxes in amounts at these dates is $32,706.85.

Q. Now I will ask you to state whether or not in most if not all of the items of the estimate of replacement of September 30, 1902 the quantities, as well as the prices, are larger than in the estimate of March 31, 1901 growing out of the fact of additional construction and advance in prices?

A. This is true almost invariably.

Q. In the estimates of Mr. Wheeler and other witnesses with reference to the distribution pipe system I will ask you to state whether or not rock excavation and macadam are excluded from the price of laying pipe and provided for in separate items?

A. Yes sir.

Q. Mr. Wheeler and the expert witnesses examined, or some of them by the Water Company in this case, have stated that the laying of pipe includes the hauling, setting valves, lead for joints, fitting and calking joints, lighting and guarding trenches and Foreman and all work appertaining to hauling and laying pipe and resurfacing street, excepting only rock excavation and replacing of macadam. Have you examined the prices for laying pipe upon which Mr. Wheeler bases his estimate of fair construction?

A. Yes sir.

Q. On page 449 of Volume "2" of Mr. Wheeler's deposition, he states the prices per foot for laying pipe exclusive of the price of the pipe and rock excavation and replacing macadam as the same enters into his estimates, which are as follows:

16	inch	$ .57875
14	"	.445
12	"	.365
10	"	.3025
8	"	.2625
6	"	.2125
4	"	.16

These prices are without the 20% that he adds for interest
2215 on money, engineering and contractor's risks and profits, which are embraced on a table on the same page, showing what it would be with 20% added. Now I want to ask you whether these prices for laying pipe are reasonable, and if not, what are reasonable prices for laying pipe?

Mr. CALDWELL: We object to the question because the question itself has been so worded as to make the witness' answer necessarily deal with matters that are the subject only of expert testimony in water works cases, and this witness has not qualified as an expert in water works cases.

Over-ruled.

Exception taken.

A. These prices are very excessive, about twice the prices given by Mr. Ludlow, Linn White, Wingfield and other water works men.

Mr. CALDWELL: I object to that answer as not responsive to the question, vague, indefinite, uncertain and being hearsay testimony. Sustained, because hearsay.

A. Well I will give you my figures. I should regard as reasonable prices for laying pipe as follows:

3	inch	7	Cents.
4	"	9	"
6	"	10	"
8	"	12	"
10	"	15	"
12	"	18	"
14	"	25	"
16	"	33	"
18	"	42	"
20	"	50	"

2216 And I have known of pipe being laid at less prices than these, where conditions are harder than in Knoxville.

Q. You have heretofore stated, in Mr. Wheeler's estimate the laying of pipe, including rock excavation and replacing macadam amounted to, according to his estimates, $74507.55. To what extent is this item excessive according to your opinion of a fair estimate of the cost of laying pipe?

A. I think it about double. I figured the same lengths of pipe by the figures I have just given, and they secure an aggregate of $38103.69, I believe about one-half of Mr. Wheeler's amount.

Q. In the estimate for laying pipe do you agree with the plaintiff's witness, Mr. Ludlow?

A. I consider his prices high enough.

Q. Are they about the same as the prices you have adopted?

A. They are the prices I have used, and I have compared them with the prices made by other parties who are experienced in pipe laying in this section.

Q. Have you endeavored to inform yourself in regard to the prices of laying pipe during this period?

A. Yes sir I have given this subject considerable investigation.

Q. Going to rock excavation for the trenches in which cast iron pipes were laid; Mr. Wheeler has allowed one cubic yard for each 100 lineal feet of cast iron pipe laid at $1.75 a yard as shown on pages 449 and 450, Volume "2" of his deposition. Assuming that in Knoxville as testified to by Mr. Rourke and Mr. Dearing that $1.00 to $1.25 a cubic yard is a fair price for such excavation, and that there is only one cubic yard to the 600 feet on the average in such excavation in Knoxville, what is the amount of excess in this estimate of Mr. Wheeler's in his estimate of fair construction cost.

2217 Give the total amount of Mr. Wheeler's estimate on this account and the amount of the excess?

Complainant's counsel objects to this question because he denies that that was the testimony.

COMMISSIONER: The witness may answer the question.

A. There is charged by Wm. Wheeler on pages 32, 33, 36, 37 39, 40, 43, 48, 65, 69, 72, 75, 80 and 96 one yard of rock at $1.75 for each 100 feet of cast iron pipe laid, making 4032 cu. yards at $1.75 $7057.00.

Price charged per yard is excessive by $.75 to $.85 cents per yard. Getaz says $1.00 is a fair price in Knoxville. Quantity is also excessive. Rourke says that one-half of one per cent. or six inches per hundred feet, or one yard in 600 feet. Dearing says 9 inches in 100 feet, or one yard in 400 feet. Cost charge for laying pipe is ample to cover. No charge for rock in chattanooga case. I should say overcharge on this item $5000.00.

Q. Mr. Wheeler has estimated restoration of macadam on one-half the length of streets in which cast iron pipe is laid at 6 cents per foot. Assuming that Mr. Rourke and Mr. Dearing give the price at 2½ cents for restoring macadam, I will ask you to what extent is this item excessive as contained in the estimate of fair construction cost of Mr. Wheeler. Give the amount estimated by Mr. Wheeler, and the difference between the two estimates?

A. There is charged by Wm. Wheeler on pages 32, 33, 36, 39, 40, 43, 48, 65, 69, 72, 75, 80 and 93 1 lineal foot for all cast iron pipe laid at 3 cents, or half the length at 6 cents, producing a summary of 150,057 feet at 6 cents	$9002.27
To March 31, 1902, equal 28.42 miles.	
This is excessive in quantity as there was very little macadam in original construction, excessive in price, as 2½ or 3 cents is ample in this city as the work was done. See Deps. Rourke and Dearing. Prices charged for laying pipe should cover this work. Deduct half the price and 2/3 the quantity.....	$1500.57
Over charge	7501.70

Q. Now Mr. Nixon, I will ask you to state how much of the rock excavation and how much of the macadam has gone out of this plant that has not been embraced in the completed depreciation of Mr. Wheeler?

2218 A. All I think that was charged for pipe that has been removed I regard as gone out.

Q. Can you give the figures Mr. Nixon?

A. Yes sir, I will do so. There were 12,926 feet cast iron pipe taken up. This figures $225.75 for macadam and $387.78 for rock excavation gone out. Total $613.53.

Q. How much wrought iron pipe enters into Mr. Wheeler's estimate of the fair construction cost of this plant. Give the size, and length of each and the entire quantity in feet, and you may state in the same connection the cost price at which the same is figured in?

A. There is 103,256.1 feet of wrought iron pipe charged as going into the construction of the plant, upon which the estimate of

$711,392.57 was obtained, and consists of 3½ inch 350.8 feet charged at 45 cents, $157.86; 3 inch 660 feet charged at 39 cents, $257.40; 2½ inch 416.2 feet charged at 32 cents $133.18; 2 inch pipe 45187.3 feet charged at 24 cents $11,463.74; 1½ inch pipe 11197.1 feet charged at 20 and 22 cents, $2276.44; 1¼ inch pipe 8617.5 feet charged at 17 and 19 cents, $1615.76; 1 inch pipe, 21423.8 feet charged at 14 and 15 cents, $3079.38; ¾ inch pipe, 12874.1 feet charged at 10 and 11 cents, $1372.63 and ½ inch pipe 2529.3 feet charged at 9 and 10 cents $246.55, making a total of 103,256.1 feet, and $20,602.94, 20 per cent. of which is $4120.59.

Q. Is this figured into the plant at the cost of $711,392.57 at the latter figure with 20 per cent. added?

A. It is.

Q. Now will you state how much of this pipe is figured out of the plant as having been taken up, in Mr. Wheeler's estimate of fair construction cost and the price of the same, and with the 20 per cent. added?

A. I find 28161.8 feet reported as taken up, on which the cost was $6120.15 as going in, and consisted of 100 feet of 3½ inch pipe at 45 cents, $45.00; 170.8 feet of 3 inch pipe at 39 cts. $75.61; 11220.3 feet of 2 inch pipe at 24 cents, $2932.87; 5488.8 feet of 1½ inch at 20.3 cents, $1114.23; 3060.2 feet of 1¼ inch
2219 pipe at 18¾ cents $573.78; 3271.9 feet of 1 inch pipe at 14.32 cents $471.40; 3837.9 feet of ¾ inch pipe at 10.66 cents $409.10; 1012 feet of ½ inch pipe at 9.70 $98.16; making a total as aforesaid of 28161.8 feet, costing $6120.15, on which 20 per cent. added would be $1224.03.

Q. Now Mr. Nixon have you in your examination of the books of the Water Company discovered the prices paid for this pipe, and the prices at which it was held on the 31st of March 1901; if so, please state what information you have acquired on that subject?

A. On April 1st 1899, I find purchases of ¾ inch pipe at 10 cents less 60 per cent., 10 per cent., 10 per cent. equal to $3.24, and also voucher #1623 June 11, 1901, I believe, galvanized pipe charged at net price of $5.25, and 2 inch at 16.56, and also of the Southern Brass & Iron Company, 10,000 feet of ¾ inch at 5 cents, on April 23, 1902, and also from the National Tube Works page 142 of Treasurer's books, 5000 feet of ¾ inch at net price 3.65 and Company's stock prices on March 31 1901 for ¾ inch pipe was 5.6 cents, 1 inch 8.1 cents, 1¼ inch 11½ cents, 1½ inch 13.2 cents, 2 inch 18 cents, 3 inch (black) 20 cents, 4 inch (black) 22 cents, wrought iron pipe laid as before stated, 103,256.1 feet charged at $20,602.94.

In use March 31st 1901, 75010 feet at Mr. William Wheeler's prices, Vol. 2 page 539 amounts to..... $15,712.50
An over-charge of 4,890.42
20 per cent. added to cost is $4120.51.

Which if added would enhance the over-charge by this amount.

Adjourned until 9 o'clock September 4th, 1903.

2220 FRIDAY MORNING, *September 4th*, 1903.

The further taking of depositions was resumed at 9 o'clock a. m.

Continuation of direct examination of W. M. NIXON:

Q. Now Mr. Nixon, if you have made an estimate of the amount of over-charges, or excessive charges, if any, on wrought iron pipe, will you state the amount?

A. I have already answered that in my last question.

Q. Going to the subject of Hydrants. How many hydrants enter into Mr. Wheeler's estimate of fair construction cost up to March 31st 1901, and at what cost are they estimated in that statement?

A. Mr. William Wheeler, on pages 32, 33, 36, 37, 40, 48, 65, 69, 75, 80, 87 and 96 charges an aggregate of 141 hydrants at $45.00, $6345.00; 48 hydrants at $32.00 each $1536.00; 104 hydrants at $37.00 each $3847.00, making an aggregate of 293 hydrants charged at $11,728.00.

Q. How many are shown in that statement to have been taken out and at what price were they figured in to the plant originally?

A. The statement shows that 27 hydrants have been taken out and allowed for at $729.00, which is, I think, $27.00 each. This leaves 266 hydrants standing in the plant as of date March 31, 1901 at a cost of $10,999.00.

Q. Do you know whether this includes the 16 hydrants in the 10th ward?

A. I think it does, that have been taken out since.

Mr. CALDWELL: I object to a statement of opinion upon a subject of fact like that.

Q. Where did you ascertain that, from the books and accounts?

A. Yes sir, it gave those hydrants, and I am informed they were taken out.

Q. Do statements of subsequent years show that?

A. It shows they were used, and Mr. Wheeler's statement for subsequent years, shows they were taken out.

2221 Q. Do you know whether these 16 hydrants in the 10th ward were useless or dead on the 31st of March 1901 from your own knowledge?

A. I do not.

Q. What number of hydrants are shown in the Supplies or Stock Account as of the 31st of March 1901?

—. They are as follows:

2—1	nozzle	Coffin	Hydrants	6	in.	connections	$23.....	$46.
4—3	"	"	"	6	"	"	.....	132.
1—2	"	"	"	4	"	"	.....	24.
1—3	"	"	"	6	"	"	4.5 ft. long	35.
1	"	Chapman	"	4	"	"	.....	20.
2—2	"	"	"	4	"	"	$22.....	44.
1—1	"	Ludlow	"	4	"	"	.....	20.
8—2	"	Calvin	"	4	"	"	$12.....	96.
20								$407.00

Q. Mr. Nixon, what is, and what has been the period from March 31st, 1901, backward covering the period of construction of this plant, the fair cost of hydrants?

A. Do you mean the naked hydrant or the hydrant installed and set?

Q. I mean the naked hydrant?

A. From the result of my experience and investigation I find that hydrants costs from say $18.00 to $27.00; probably some special hydrant with very large connections and several nozzles would cost more.

Mr. CALDWELL: We object to the general question as to the cost of hydrants because unrelated wholly to the kind of hydrants in use by this Water Company.

Over-ruled. Exception taken.

Q. I will ask you whether your estimate is based upon the kind of hydrants that appear to have been used in this plant?

A. It is, as they are 1 nozzle, 2 nozzle and some 3 nozzle hydrants.

Q. What is the fair cost of a hydrant set, including the hydrant and setting same.

Mr. CALDWELL: Plaintiff excepts to the question as calling for expert testimony in water works cases and this witness has
2222 not qualified as an expert in water works cases.

Over-ruled. Exception taken.

A. These 266 hydrants are composed of 95 one nozzle 148 two nozzle and 28 three nozzle hydrants. I have investigated this subject and have come to the conclusion that the estimate of Mr. Ludlow, a witness in this case, that $30.00 each for an average of these hydrants set, is a proper value. It is a little high, but I have adopted it.

Mr. CALDWELL: I desire to except to the last answer of the witness upon the ground that it appears from the answer that the witness' knowledge is derived wholly by hear-say, and it does not appear that he has ever had any experience whatever in setting hydrants, or that he has any direct personal knowledge of the cost of material and work to which his last answer refers.

Over-ruled. Exception taken.

Q. Now Mr. Nixon, taking the basis fixed by yourself and Mr. Ludlow at an average of $30.00 for hydrants and setting same, I will ask you to state how much, if any, is the over-charge in this estimate of Mr. Wheeler's on hydrants—I mean on the 266 hydrants left in the plant?

A. As stated in answer to a previous question, it is shown that the charge is standing 266 hydrants, $10,999.00, and allowing the same number of hydrants at $30.00 each would make $7980.00 which would be an over-charge of $3019.00.

Q. Are your comparisons in regard to hydrants made with reference to the price that Mr. Wheeler fixes, with or without the 20 per cent.?

A. Without the 20 per cent. If the 20 per cent. were added it would enhance the whole charge to that amount.

Q. Now going to the subject of gates and valves. What amount is figured into Mr. William Wheeler's estimate of the fair construction cost of this plant up to the 31st of March 1901 for
2223 gates and valves without the 20% added?

A. Mr. William Wheeler charges, on pages 32 to 96 733 valves at an aggregate cost of $11432.45.

Q. What number and what amount of gates and valves have been figured as a part of that estimate and at what price or aggregate cost by Mr. Wheeler?

A. 86 at an aggregate cost of $147.20.

Q. Mr. Nixon you can state whether or not there is an overcharge on account of gates and valves, if so the amount and how you arrive at the same?

A. I have computed these 733 valves at the prices furnished by Mr. Kimball for 290 valves, from 2 to 20 inches, and taking the average cost of each size and computing the above at these prices makes $9729.46, which would be an overcharge of $1065.79 after deducting the valves removed, and I have also figured the same valves at the prices given by Mr. Ludlow in his deposition, Volume "3" page 41, which makes an aggregate of $9325.75, which makes an overcharge of $1459.50.

Q. Going to the subject of meters, how many meters and at what price, excluding the 20% were figured by Mr. William Wheeler in his estimate of fair construction cost of this plant up to the 31st of March 1901?

A. 284 meters, as shown on pages from 42 to 98, Volume — at an aggregate cost of $5550.75.

Q. How many of these meters are shown to have been taken out and at what value?

A. 8 meters at the value of $367.00.

Q. If you find an overcharge on this account you will please state what it is and how you arrive at it?

A. At the average purchase prices of 1364 meters furnished by Mr. Kimball, these meters would amount to $4397.97, and for setting the same at 75 cents each, $207.00, would make $4604.97
2224 an overcharge of $578.78 after allowing $367.00 for the 8 meters taken out.

Q. Now going to meter boxes; what number of meter boxes and at what price are they figured into the estimate of fair construction cost by Mr. Wheeler up to the 31st of March 1901?

A. Mr. Wheeler has charged on pages 35 to 98, Vol. — 283 meter boxes at $8.00 each, amounting to $2264.00.

Q. This is the price exclusive of the 20%?

A. Yes sir.

Q. Will you please state what you regard as the fair cost of these boxes set, and what, if any overcharge you find on this account?

Mr. CALDWELL: We object to the question requiring expert water works knowledge, which the witness has not shown he possesses.

Over-ruled. Exception taken.

A. Mr. Kimball shows the cost of these boxes as having been $4.25 to $4.85, and allowing for the setting of the same I have fixed $5.50 as a fair average cost, and computing the number at this price obtains $1556.50, making an overcharge of $707.50.

Mr. CALDWELL: We object to the answer because it simply undertakes to correct one witness by the testimony of another witness and don't even contain an expression of the witness now testifying. Over-ruled. Exception taken.

Q. Now Mr. Nixon I want to ask you what amount, according to the table of incomplete depreciation of Mr. Wheeler had gone out of the value of this plant on the 31st of March 1901 on account of the age, use, wear and tear and deterioration of the material, machinery, pipe, &c., that entered into the plant; I mean out of the plant as it then existed and as shown by his table?

A. The total amount of incomplete depreciation shown by
2225 Mr. Wheeler in his table on this subject up to this date was $77726.51.

Q. Do you understand that to be the difference between the plant as it then existed and what it would have been if then composed of entirely new material?

A. I understand that as his idea and what he was endeavoring to attain.

Q. If you have not already stated it in every instance, I will ask you to state now whether or not your comparisons with Mr. Wheeler's estimates have been of the prices fixed by Mr. Wheeler without the 20% added?

A. In almost every instance I have figured without the 20%. These depreciation amounts however, made by Mr. Wheeler, include the 20%.

Q. Where you have figured on any other basis than the 20%, have you so stated?

A. I have so stated, but I recall no instance where I have included the 20%; on the contrary I have excluded it, it being my idea that it was excluded in a lump at the outset, where I had ascertained this amount at $114292.71.

Q. Mr. Nixon in the prices that you have fixed for the purposes of comparison with Mr. Wheeler's prices without the 20% added, I will ask you whether or not you have fixed the prices as contractor's prices and including or excluding contractor's risks and profits, which?

A. Why my prices have allowed for contractor's profit, but not 20% profits in every instance.

Q. Now, Mr. Nixon, how much in the aggregate is allowed in Mr. Wheeler's estimate for engineering alone upon the pipe system?

A. The total 20% on pipe alone is $48122.98, and dividing this into 21 parts and multiplying that part by "6" for the engineering, secures $13749.42 for engineering on pipe alone.

Q. Mr. Nixon I will ask you to state whether or not engi-
2226 neering is required, and if so, to what extent in the laying of pipe, except so far as it may enter into the original plans of the plant?

Mr. CALDWELL: We object to the question requiring expert water works knowledge, which the witness has not shown to possess.

Over-ruled. Exception taken.

A. I wouldn't suppose much engineering would be required in pipe laying. I have done a good deal of it without much engineering.

Q. You have yourself engaged in laying pipe?

A. Yes, sir. A good foreman is a more important requisite than an engineer.

Q. By whom were the original plans for this Water plant furnished and paid for, if you know?

Objected to by counsel for plaintiff as irrelevant and incompetent.

Overruled. Exception taken.

A. The records in this case, or perhaps the other one shows, that the plans and specifications were furnished by the City and sold to the Water Company with the real estate for the location of the pumping station and reservoir.

Q. Do the books of the Company show how much was actually paid for engineering and to whom; if so, please state how much and to whom paid in the original construction of the plant?

A. Yes, sir, the Construction Books show that Mr. E. F. Fuller was the engineer and was paid $1856.50 for his engineering services.

Q. Now you have heretofore stated that in Mr. Wheeler's estimates up to March 31st, 1901, there is included an aggregate sum of $32,655.06 for engineering. I will ask you now whether or not the books of the company show that the salary of the supervising engineer, and the engineering expenses generally of this plant,
2227 as well as that of his assistant, Mr. Kimball, have been paid from year to year as an operating expense and included in the operating expenses as presented in the aggregates in this case?—and if not wholly paid out of operating expenses, to what extent has any of these salaries been assigned to Construction Account?

Mr. CALDWELL: We object to the question in so far as it goes into operating expenses back of March 31st, 1899.

COMMISSIONER: The exception is sustained so far as inquiring into operating expenses back of the year 1899, but over-ruled so far as permitting an answer as to whether the engineers were paid.

Mr. PICKLE: We except to the action of the Master in over-ruling the same.

A. The regular salaries of the supervising engineer—the engineer, his assistant and superintendent, have been in the main charged to Operating Expenses. I recall a division of Mr. Kimball's salary of perhaps one or two years?

Mr. CALDWELL: I have no objection to his saying it has been paid, but I don't want Operating Expense Account back of 1899 brought in, and I think the court has excluded that?

COMMISSIONER: That is correct.

Q. Now, how is the fact as regards the year 1899, the year ending March 31st, 1900, March 31st, 1901, and March 31st, 1902. State whether or not the whole of Mr. William Wheeler's salary during those years has been paid as an operating expense, and what part of it, if any, Mr. Kimball's (salary) his assistant, has been paid in like manner, and what part, if any, has been assigned to Construction?

A. For the year 1899-1900 the whole of Mr. William Wheeler's salary was charged as an operating expense, and $1250.00 of
2228 Mr. Kimball's salary, and the balance of $750.00, I think it is, is charged to Construction account.

For the year 1900-1901, the whole of Mr. Wheeler's salary was charged to operating expenses and $1500.00 of Mr. Kimball's salary, and $500.00 to Construction.

For the year 1901-1902, $1725.00 of Mr. Kimball's salary is charged to operating expenses and $275.00 to Construction. All of Mr. William Wheeler's salary is charged to Operating Expenses.

Q. How has Mr. Elbert Wheeler's salary, as Treasurer, been charged during those years?

A. To Operating Expenses.

Q. The whole of it?

A. The whole of it.

Q. How much would the engineering be, including pipe and appurtenances, can you state, as it enters into this estimate?

A. It is $18533.95.

Q. Then Mr. Nixon, as I understand you, while engineering on pipe alone plays a part of swelling these estimates to an extent of over $13,000.00, the engineer and his assistant, with the exception of a little over $2000.00 during the period you have been permitted to investigate, have been paid out of Operating Expenses; is that a fact?

A. Yes sir.

Q. And while the engineering has swelled the total of these estimates over $32,000, you have found, so far as you have been able to examine the accounts, that less than $2000.00 of the engineering has been assigned to Construction Account and the balance paid out as Operating Expenses?

A. That is true.

Q. Where, Mr. Nixon, are the books and vouchers of this Company which you were permitted to examine, kept?

A. At Boston principally.

2229 Q. What do you mean by "principally"?

A. I mean that I went to the office of the water company to examine the books and found the old construction books from 1882-'3, and another set of books from 1883 to January 1, 1891 there, but I had understood they had been recently brought from Boston, and during my examination, the remainder of the books—the two other books I examined, were sent from Boston, as were the vouchers and stock accounts and other papers that I examined.

Q. I will ask you Mr. Nixon to state from your examination of the books what is the effect upon the expense of operating this plant in having two offices, one at Boston and one here?

A. It certainly increases the expenses of operating the plant.
Q. In what way?

Mr. CALDWELL: We object to that as a mere abstract statement of opinion.
Over-ruled. Exception taken.

A. With an executive and operating force here and a supervising force at Boston, their continual communications by telegraph and expressage of records, plans and maps entails an expense as well as it appears to me a very useless expense at the Boston end of the institution.

Q. Well what have you found with reference to the traveling expenses of the officials from Boston here and from this city to Boston?

A. I find they are charged up to operating expenses.
Q. Are they of a considerable amount?
A. Yes sir.

Mr. CALDWELL: We object to "considerable amount" and the generality of the question.
Over-ruled. Exception taken.

Q. Where were you permitted or required to make an examination of these books?

A. I made the examination in the office of the Water Company, upstairs in the Superintendent's office.

2230 Q. Was it done under the surveillance of an officer or an employé of the company?

Mr. CALDWELL: We object to the question as irrelevant and incompetent.

It is admitted that Mr. Nixon never made any erasures or alterations in the books of the water company.

Q. Mr. Nixon, taking into consideration that the original plans of this water works were furnished by the city as you have stated, and that only about $1800.00 was paid for engineering in the construction of the original plant, and that such work as pipe work as you have stated may be done without engineering, I ask you what would be in your opinion a fair per cent. upon the actual value of this plant as it may be found for engineering services?

The plaintiff declines to accept the statement that only $1800.00 was paid for engineering in the original construction and excepts to the question as a whole because it calls for expert knowledge of water works construction and engineering as related thereto, as in neither aspect of the question has the witness qualified himself to answer. We also decline to accept the statement that the plans were furnished by the city.

COMMISSIONER: The objection as to the testimony of the witness because not an expert in water works cases is overruled.
Exception taken.

A. I should think that 2½ per cent. would be a liberal allowance

as there was nothing very complicated in the work except the reconstruction of the buildings, the pump station, &c.

Q. Now Mr. Nixon I will ask you whether or not from the books and vouchers furnished you you have found any explanation further than you have stated with reference to the erasures of the items on the franchise account exhibited by Mr. Wheeler in his depo-
2231 sition, aggregating some $30000.00?

Plaintiff excepts to this question on the ground that it includes a part of the substance of the answer in the question, and also declines to accept the statement that items amounting to $30000.00 have been subjected to erasure in the account referred to.

Overruled. Exception taken.

A. I found nothing further than was detailed in explanation of the account on my examination of this subject on a previous date.

Q. Mr. Nixon what experience have you had in the operation of plants of the character that requires the keeping of Construction and Operating expense accounts and the separation of the same?

A. Well I have encountered this requirement in the operation of almost every business with which I have been associated, to-wit: mining and manufacturing and in the operation of State industrial enterprises.

Q. Do you think you are qualified from your experience and knowledge in the construction and operation of such plants to determine between operating expenses and construction? and what are proper operating expenses of plants similar to this?

A. I think so, though that is a matter in some particulars dependent upon conditions, but in a general way and through a general conduct of business, I think I would be able to discriminate between operating and construction expenses.

Q. Have you examined the books of this water company for the three years beginning March 31, 1899 and ending March 31, 1902 with reference to its operating expenses in connection with its construction accounts?

A. Yes sir I have made such examination of the books and papers of the company during this period.

Q. Has your examination been thorough of the books and
2232 vouchers that have been furnished you?

A. I have made it as thorough as possible with the means at hand and the time at my command and with the assistance I had.

Q. I will ask you if you used such information and explanation that has been afforded by the deposition in this case on that subject in regard to the items of this operating expense account?

A. I have.

Q. On page 61 of Mr. Elbert Wheeler's deposition, Volume "2" of the evidence in this case, he states the aggregate of operating expenses for the year beginning the 31st of March 1899 and ending March 31, 1900 at $31545.00, and tabulates the items as follows:

Alum	$1231.21
Expenses	4310.56
Fuel	4096.69
Insurance	323.17
Filter Station	1888.64
Pump station	5203.73
Repairs	1308.10
Salaries	7328.25
Taxes	5844.80

making the above aggregate. Now I will ask you whether or not you have determined from the books of the company the aggregate amount of the operating expenses properly chargeable on this account and if so, state the amount?

Mr. CALDWELL: We except to the answer *of* that question by this witness because he has not qualified as an expert in water works maintenance and has not even been asked if he has had experience in the operation and maintenance of water plants. Moreover the question is a judicial one in one aspect certainly.

Overruled. Exception taken.

2233 A. I have made an examination of the operating expenses for the year 1899-1900 which runs from March 31, 1899 to March 31, 1900, and find what I regard as the proper amount of operating expenses to be $25466.91 as against $31545.00 charged by General E. Wheeler.

Q. Now Mr. Nixon will you analyze the items of deductions that you have made from this account, showing what they are and why they are eliminated and wherein the differences are made between your estimate of operating expenses for this year and that found in General Elbert Wheeler's deposition, taking the subheads, Alum, Expense, Fuel, &c., in making this analysis in the order in which General Wheeler has given it?

A. My first item, Alum $1231.21 which is the same amount charged by Mr. Wheeler.

Filter Station $1888.64 which is the same amount charged by Mr. Wheeler.

Insurance $178.17. Mr. Wheeler has $323.17. I have deducted $145.00 as improperly charged in the operating expenses, being a payment to Charles F. Parks for premium as security for E. Wheeler $60.00, and a payment to William Wheeler for premium as security for E. Wheeler $60.00, and a payment to the American Surety Company for bond of Mr. Kimball $25.00.

The next item is Salary, $5665.13 against Mr. Wheeler's charge of $7328.35. I find a charge of $1105.76 for salary of Mr. William Wheeler. That is stated in the deposition of Mr. Wheeler of being one per cent. of water collections which amount to $755.76 being an overcharge of $350.00. Mr. E. Wheeler's salary $1232.02 is charged, one-half of which I have allowed for operating expenses or $616.01, thinking that the other one-half should have gone to construction account. The salary of L.-B. Company officers, $319.33

I disallowed, as I was unable to find any explanation of what it was for, what year, what time or for what duties or anything
2234 about it. As to Mr. William Wheeler's salary of $1105.76, after deducting the $350.00, $755.76 remains. I have divided this between operating expenses and construction account, allowing $377.88 in operating expenses. These items aggregate $1663.23.

The next account is Repairs account, where I have allowed $1109 and General Wheeler has charged $1318.10. I have made deductions of an item of $15.95 and another of $193.15 for Lonsdale-Beaumont water company without vouchers or explanation as to whether they are proper charges against the Knoxville Water Company and are entitled to a place in this account, or cover expenses for this year or of any benefit to the Knoxville Water Company.

The next account is the Pump Station expenses which I have allowed at $3982.03 which is the same amount charged by Mr. Wheeler.

Q. Are you sure that is what Mr. Wheeler has charged. He states it here as $3982.23. Do you agree with that statement?

A. I agree with his statement of $3982.23, or within 20 cents of it, which is the amount I find on the books.

The next item is fuel account on which I have allowed $3027.47 being $2694.95 at the Pump Station and $332.49 at the Filter Station. Mr. Wheeler has these items charged at $4096.69. The difference arises from an item of $1069.25 for the Lonsdale-Beaumont Water Company which I have not included for the reason that I have no vouchers to show the date, period covered, or when this coal was furnished, or in what year, and on account of the Knoxville Water Company not acquiring the ownership of the Lonsdale company until January 1, 1900, this charge for fuel would appear very excessive for three months.

The next item is Taxes. I have allowed $5326.54 for taxes against Mr. Wheeler's charge of $5844.80. The difference arises
2235 from $501.00 taxes on the property of the Lonsdale-Beaumont Water Company for the previous year and $17.26 for taxes on property outside of the city.

The next item is the item of Expenses. I have allowed as proper $3058.75 against Mr. Wheeler's charge of $4310.56. By the way his charge of $4310.56 does not agree with the books as the amount found on the books is $4051.43 making a difference of $259.13.

I have deducted from the expense account $992.68 of other items improperly charged, being $68.25 for Lonsdale-Beaumont Water Company and $481.86 for Lonsdale-Beaumont Water Company vouchers. There are no vouchers to these items and there is no way to decide whether proper charges of this account, or the indebtedness of the water company. Other items *is* contribution to the Knoxville Carnival $100.00, Testimonial to Major F. K. Huger $10.00, Easter Addition to the Sentinel $25.00, and expenses paid at Boston not needed or necessary to the operation of the Knoxville Water Company, $307.57. The character of the items——

Mr. CALDWELL: We object to the last answer in so far as it as-

sumes to perform the judicial function whether or not the items of expense in the Boston office were necessary to the operation of the business of the Knoxville Water Company.

Mr. PICKLE: Have you got those items or book containing them?

A. I think I have them on another memoranda. They are items of the Boston office and I will get them later.

COMMISSIONER: Under the witness's agreement to furnish the items hereafter the exception is over-ruled.

Q. Mr. Nixon on page 61 of General Elbert Wheeler's deposition and in the table of operating expenses making the $31545.00
2236 he states the item of fuel at $4096.69 and on page 84 of the same deposition in answer to direct question as to the amount of fuel for that year he gives the item as $3027.44. Which of these items have you found to be correct by the books?

A. $3027.44.

Q. Well on page 61 of General Elbert Wheeler's deposition and in the table referred to in the above question he states Pump Station Expenses at $5203.73 and on page 93 in answer to the question as to the amount of Pump Station expenses he gives $3982.23. I will ask you which one of these amounts you found to be correct?

A. $3982.23 is within 20 cents of being correct. $3982.03 is the amount on the books.

Q. What is the difference between the two statements?

A. $1221.50 is the difference, which is the amount of the expenses of the Lonsdale-Beaumont Company which I have left out of my table or computations for this year of operating expenses.

Q. Now I will ask you, in a single statement to make up the amount and character of the expenses charged on account of the Lonsdale-Beaumont Company up to the 31st of March 1901, that plant having been operated for the preceding three months by the Knoxville Water Company?

A. The items I find as chargeable to this company by General Wheeler's account, and some of them mixed into the operating account for this year consist of Taxes $501.00, Expenses, $1221.50 Salary of E. Wheeler, $98.40, Repairs, $209.10, more expenses $550.11, Fuel, $1069.25, total, $3649.36.

Q. Now Mr. Nixon if these expenses of the Lonsdale-Beaumont plant were paid for a period prior to the 1st. of January 1901, would they be proper expenses to come into the operation of this plant for that year?

Mr. CALDWELL: We object to that question because it is a question for the court pure and simple.

2237 COMMISSIONER: I see no harm in his answering and will permit him to go on and state the facts about it.

A. I should certainly say not, as my information is that the Knoxville Water Company acquired the property of the Lonsdale-Beaumont Water Company on January the 1st. 1900, and expenses of the Lonsdale-Beaumont company accruing before that date would

certainly not be proper operating expenses of the Knoxville Water Company.

Q. Now Mr. Nixon why do you eliminate the $501.00 for Taxes on the Lonsdale-Beaumont plant which is included in Mr. Wheeler's estimate?

A. This item appears to have been paid on the 31st of March 1900 on property of the Lonsdale-Beaumont company for the year 1899, being privilege Tax $82.60, property tax $195.00, city property tax, $198.15 and privilege tax of $25.00. This date of payment, an explanation without the vouchers, only a part of which I was able to secure, indicates that this expense accrued during the year 1899 and before the purchase or acquir-ment of the property of the Lonsdale Company, and is consequently not a proper operating expense of the Knoxville Water Company for the year 1900.

Q. Now I will ask you in this connection to give the items that make up the Salary account as shown by the books—the general items—for the information of the court and Commissioner?

A. It consists of cash items from expense account $2412.24; to William Wheeler $1105.76; to F. C. Kimball $1250.00; C. T. Cates 1000.00; E. Wheeler $1133.62 and Charles B. Bowen $9.00; E. Wheeler for L-B $98.40 and L-B salaries $319.33, total $7328.35.

Q. Now I will ask you whether the salary account is made up of the same general items with different amounts except those relating to the L-B plant for subsequent years?

A. Well, substantially so.

Q. Now I want you to explain Mr. Nixon what makes up this item of $2412.24 transferred from the expense accounts?

A. Well I am unable to say clearly as it is a very difficult
2238 matter to ascertain from the books—as it is the expense account those days was charged with everything and at the end of the year it was distributed into various operating expense accounts, and this amount is an amount that was left. This was an item that was distributed from expense account to salary account.

Q. It is outside of the salaries of the general officers of the company?

A. I take it it is some additional salaries and smaller items of salaries.

Mr. CALDWELL: I object to the last answer as indicating a clear want of sufficient knowledge to testify on the point.

Q. You have not assigned any part of this $2412.24 to construction account but left it in operating expense account, have you?

A. Yes sir. I should have said a moment ago that this account is largely made up of the salaries of a part of the office force.

Q. You mean this $2412.24?

A. Yes sir, and I have not eliminated any of this amount from the operating expenses.

Q. Have you eliminated any part of the attorney's salary?

A. No sir.

Q. And have left the adjustment of this year for Mr. Kimball's salary as made?

A. Yes sir.

Q. Now Mr. Nixon I will ask you to give the items constituting the amount of $307.00 that you have eliminated from this expense account which you say were incurred on account of the Boston office and have eliminated?

A. The books show these expenses were paid at Boston and are included with some of the other amounts I have mentioned, together with E. Wheeler's expenses to Knoxville, $111.22 in a charge of $22299.64. I don't recall that the books show the items of
2239 these expenses further than the amounts. The explanations in this book are exceedingly meagre.

Q. On page 5 of Elbert Wheeler's deposition he gives the aggregate of the operating expenses for the year beginning March 31, 1900 and ending March 31, 1901 at $35775.89 and in an explanatory and detail table he gives the items under certain heads constituting this sum as follows:

Alum	$1310.78
Insurance	564.43
Taxes	8182.02
Salary	7805.06
Pump Station	3948.19
Filter Station	2270.28
Fuel	5431.15
Repairs	3287.82
Expense	2976.16
Water rates litigation	1156.34

Now I will ask you Mr. Nixon whether you have examined the books with reference to this operating expense account for this year and what you have found to be the operating expenses proper of this plant for the year?

A. I have made an examination of the operating expenses for this year and have nearly concluded it, and have investigated sub-accounts entering into the operative expense account, which is as follows:

Alum	$1310.78
Insurance	362.76
Taxes	7196.74
Salary	6140.94
Pump Station	3697.15
Filter Station	2270.28
Fuel	5236.77
Repairs	2315.35
Expenses	2296.75
	$30827.52

Adjourned until 9:00 — September 5th, 1903.

2240 SATURDAY MORNING—9 o'clock a. m.

The further taking of depositions was resumed.

Continuation of direct examination of W. M. NIXON.

Examination by Mr. PICKLE:

Q. Now Mr. Nixon, there seems to be a difference between Mr. Elbert Wheeler's statement on page "5" of his deposition showing an aggregate of $35,775.89 as Operating Expenses for this year 1900-'01 while you have fixed the amount at $30,827.52. Will you state and explain in your own way the items of difference between you and Mr. Wheeler on each one of the sub-heads?

A. The first difference arises from $926.49 a difference between Mr. Wheeler's statement and the books. These differences occurring in the Expense account which he has at $2976.16 where the books show $2879.20 being a difference of $96.96, and in the Repairs Account where Mr. Wheeler has $3287.82 the books show $2458.29, the difference being $829.53. The other differences are $201.67 on Insurance item, Mr. Wheeler having the sum $564.53 from which I have deducted $25.00 paid the American Surety Company for bond of Mr. Kimball, $30.00 paid to Mr. Charles F. Parks as surety on bond of Mr. E. Wheeler, and $30.00 paid to Mr. Wm. Wheeler as surety on bond of Mr. E. Wheeler; and where there is charged $175.00 on boiler insurance for three years, I have allowed one-third of the amount, and excluded two-thirds of $116.67. These deductions aggregate $201.67 from the Insurance Account.

The next item is Taxes which Mr. Wheeler and the books have charged at $8182.02, from which I have excluded $20.28 taxes paid on some property in the country and not used for Water Works purposes, and $965.00 paid W. S. Morgan, Secretary of State, for Consolidation tax, for consolidating with other water companies, which I have excluded as not an Operating Expense, but an investment expense, or some other expense in line with charter expenses or corporation organization expenses.

2241 The next item is Fuel Account, where the books and Mr. Wheeler have $5431.15 charged. I have allowed $4304.99 fuel at the Pump Station and $931.78 fuel at the Filter Station, and excluded $194.38 for fuel for the Lonsdale Beaumont Water Company.

The next item is Repairs Account, where the books show $2458.29 and Mr. Wheeler $3287.82, and I have allowed $2315.35, excluding $142.94 made up of $48.20 for two hydraulic jacks bought of the Knoxville Iron Company, which is not a proper item, in my opinion for Repair account, as these jacks are tools and equipment on hand and Repairs are supposed to cover material that is used up or gone into repairing, deterioration or breakage. The next item is $5.00 paid to M. Nicholson for engineering instruments, which is not a proper charge for Repair Account. I find this item however, is properly distributed on the voucher, but was evidently improperly charged through an error on the books. The next item is $64.74 for eyebeams for pipe bridge purchased from B. B. Dallas, which is

not a proper charge for Repair Account it belonging to Construction account. The next item is $25.00 paid for furnishing and setting stone steps at Pump Station. It is not a proper charge for Repair Account, but should be in Construction account.

The next account is Pump station, where the books and Mr. Wheeler both have $3948.19 charged, and I have allowed $3697.15 the difference in this account being the excess of stock account, the stock account at the first of the year being $442.05 and at the end of the year $693.09, a difference of $251.04, which I have deducted from this account.

The next account is Salary Account. The books show charged $7505.06 and Mr. Wheeler has the same amount, and I have allowed $6140.94, to the differences being $500.00 of the salary of Mr. Kimball, $465.64 being one-half the salary of Mr. William Wheeler, $698.48 being one-half the salary of Mr. E. Wheeler,
2242 these items aggregating $1664.12.

The next account is Expense Account where the books show $2879.20 and Mr. Wheeler's statement $2976.16, or $96.96 in excess of the books, and I have made this amount $2296.75, the difference being $582.45, composed of the following items of contributions which I regard as improper charges. While these contributions to various public and charitable purposes are proper and commendable and not criticized, it was not proper or correct, in my opinion, to charge the same up to Operating Expenses of a public Water Company, operating under a franchise given by the public. A strictly private corporation or company could, without question, make such disposition of such expenditures, but a public water company, operating under a franchise from the public and entrusted with a taxing-privilege upon the people stands in line with an institution supported by public appropriation. The management of a public institution operated upon or by the appropriation of public funds, would be severely criticised if making these charitable and other contributions and charging the same to the expenses of operating the institution. In the case of a Water Company these amounts should have been charged to charity or some other similar account to be paid from the profits or net earnings of the company. Upon this theory, the following are deducted from the Expense Account for this year as improperly charged to this account:—

Contribution to Fire and Police Department, souvenir $25.00; contribution for testimonial to Mr. C. L. Ewing Supt. Southern Railway $5.00, Contribution for Galveston Flood sufferers $5.00, an item of cigars $3.25, Knoxville Sentinel contribution for Carnival Edition $25.00, Journal & Tribune contribution for Carnival Edition $25.00, contribution to furnishing the City Hospital $15.00, Expense of entertaining guests from Nashville $5.00, contribution to
2243 Carnival $25.00, Superintendent's Kimball's dues to Knoxville Chamber of Commerce $2.00, Rent of Spring to Mary J. Blanc to January 1st 1901 $75.00.

Mr. CALDWELL: From the decision of the witness against the propriety of the foregoing expenditures, Plaintiff prays an appeal to the Master.

A. C. C. Nelson for copy of Commissioner Caldwell's Report in the Chattanooga Water case, charged to Expense account $8.00, which should be charged to Water Rates Litigation and not to operating expenses. I might explain that the rent of the spring was excluded as an Operating Expense of the Knoxville Water Company, as the spring was in the country and not used, and it was not an expense in the operating of the Knoxville Water Company's plant. Also another spring rent to P. J. Griffin for the Lonsdale-Beaumont Water Company, and not used by the Knoxville Water Company $50.00, which had gone out of use and been abandoned. The payment of $300.00 to Charles T. Cates charged to Expense account without a voucher or any explanation as to what it was for. Unnecessary expenses at Boston for alleged work of employés found in the following voucher: "Knoxville Water Company to William Wheeler, premium as surety $60.00, Salary as secretary $50.00, telegrams expense $.65, paid from drawer sundry articles $1.95, telegrams on construction $3.15, Services "F. L. P. service pipes and expense record $18.38, salary for quarter $295.27 marked "charge construction $12.96, charge expense $13.23, charge to salary $285.97, charge Insurance $60.00." The only exclusion or the only amount involved in this voucher is the expense item of $13.23 and another expense item of $.97 in a similar voucher. That voucher is numbered 829, October 1st 1900. These items amount to $582.45 as before stated and complete the explanation of differences that reduce this account for the year 1900-1901 to $30,827.52.

2244 Q. Mr. Nixon, you have excluded in your next foregoing answer certain items paid for surety on bonds. I will ask you to explain more particularly what these items appear to have been paid for. Was it for the service and risk of the surety in going on the bonds?

A. As far as the books explain the payments to Mr. Park's and to Mr. William Wheeler are for going on the bond of Mr. Elbert Wheeler as Treasurer of the company, $30.00 each for this year.

Q. You have in disposing in your next foregoing answer in the matter of salary, adopted as a basis between construction and operating expenses one-half the salary of William Wheeler and one-half the salary of Elbert Wheeler. Now I will ask you to state what was the amount paid to the office force that year in addition to the salaries of these officers?

A. It seems to have been $2976.81 charged to Salary account.

Q. Now have you made any division of the expense of the office force and charged any part of it off?

A. No sir I let that stand; just divided equally the salaries of the two Mr. Wheelers as fair for that division.

Q. I will ask you whether or not it would have been proper to have divided the office force, and whether in cutting the salaries of these officers you have taken into consideration that fact?

A. I did. I think it would have been proper to have properly and correctly apportioned the expense of the office force to that part which should have been charged to construction and which should have been charged to operating expenses, but as that was difficult to ascer-

tain I took as a shorter method a division of the salaries of the chief officers and did not distribute the salaries of the subordinate officials.

Q. Did you apportion any part of the attorney's salary to Construction during those years?

A. I did not.

2245 Q. Now what was the amount of construction during this year as shown by the estimates of Mr. Wheeler, and what amount was allowed as engineering and contractor's profits in that estimate for the construction of this year?

A. In Vol. "1" page 103 the construction for that year exclusive of the Lonsdale-Beaumont property is reported as $79233.55 which excludes $13419.76 as the 20% item, which divided up is $3834.24 for engineering services, $7668.48 for contractor's profits and $1917.12 for interest on money.

Q. During this year what do the books indicate as to the manner of construction whether by the company or by contractors?

A. The construction seems to have been done during this time by the company.

Q. Mr. Nixon were you furnished with vouchers for expenditures found in this account and that of the preceding year relating to the Lonsdale-Beaumont plant, if not why not?

A. Well I didn't get those vouchers; I didn't find them in the office and I didn't understand that they were there.

Q. Did you ask for all vouchers for those years?

A. I think so. I never had any Lonsdale-Beaumont Water Company vouchers.

Q. Mr. Nixon to what extent was the Pump Station account $3948.19 consisting of supplies at the beginning of the year, which were eliminated by transfer to the general supplies account at the end of the year?

A. That occurred the next year.

Q. Well I will ask you whether the supply account was carried in the Pump Station account and swelled the amount as stated in Mr. Wheeler's deposition during this year?

A. The stock account, which I understand you to be inquiring about, shows that the amount on hand at the beginning of the year was $442.05; the amount at the end of the year was $693.09,

2246 and therefore increased this part of the expense $251.04 which I deducted from the net balance charged to operating expenses for that year.

Q. Now how was this supplies account disposed of after this year?

A. At the end of the next year these supplies were carried to a supply account and a "new Pumping machinery" account, and the stock account in this account closed out.

Q. Well would they appear then in the supplies account and construction account after being transferred thus?

A. Yes sir they would so appear after these entries were made.

Q. Mr. Nixon you have eliminated an amount of $300.00 paid to Mr. Cates for which you say there was no voucher or explanation.

Is this amount additional to the salary allowed in the Salary account for this year?

A. Yes sir.

Q. In regard to the amount you have eliminated for Springs; I will ask you to state whether or not these amounts should be treated, if they were part of the obligation assumed by the Knoxville Water Company upon the purchase of the L-B Company, or as part of the purchase price paid for that plant instead of operating expenses?

Mr. CALDWELL: The question of proper bookkeeping has been testified to by the witness and we don't object to that, but the question now propounded is one purely for the court.

COMMISSIONER: Let him answer.

A. I consider that these payments should be disposed of in some other way than by carrying them into operating expenses of the Knoxville Water Company for the current year, as they were not used and was of no benefit to the Knoxville Water Company.

Q. Mr. Nixon it appears from the deposition of Mr. Kimball that 3500 feet of 12 inch pipe was taken up in the Fall and Winter of this year, 1900-1901 out of what is known as the gravity line 2247 of pipe extending from the Pump Station to the Springs, and it appears that $559.00 was actually paid for this work. I will ask you how much per foot that would be for the taking up of this pipe?

A. Right at 16 cents per foot.

Q. Now in allowing the company credit and deductions for taking up pipe, Mr. Wheeler furnished the following table on page 38 of his deposition:

For taking up			16	inch	pipe	30	cents	per	foot.
"	"	"	12	"	"	22	"	"	"
"	"	"	10	"	"	18	"	"	"
"	"	"	8	"	"	15	"	"	"
"	"	"	6	"	"	12	"	"	"
"	"	"	4	"	"	10	"	"	"
"	"	"	3	"	"	10	"	"	"

I will ask you whether or not the prices there claimed and allowed the company for this work are reasonable, and if not, what would be reasonable amounts for that sort of work?

A. These amounts for taking up this pipe are estimates, and tested by experience in this case show that on this item they are 6 cents per foot excessive, and I consider them excessive on other sizes.

Q. About how much excessive?

A. About 50% at least.

Q. Now as to this gravity line, was there anything in connection with it that made it unusually expensive for its taking up?

A. I should think that it would have been more expensive than taking up pipe in the city, as it was out in the country, far removed

and in scattered sections, being the iron pipe in depressed sections of the clay pipe gravity line.

2248 Q. About what was the distance that this pipe was to be removed to get to the supply station?

A. Three or four miles. This line was five and one-half miles long, but I don't know exactly where these iron sections were.

Q. Mr. Nixon is this 3500 feet of 12 inch pipe taken up as Mr. Kimball states in the Fall and Winter of 1900 embraced in the amount of pipe you have given as shown to have been taken up by these estimates?

A. I cannot tell. I don't think it is. I don't believe there is any record where it has been pointed out. I don't think it has been figured in on either side. I didn't locate it in the distribution system or in its replacement or re-use.

Mr. CALDWELL: We object to an opinion upon the subject as we are entitled to have a definite answer one way or the other. I don't think that is an answer that can be called testimony.

COMMISSIONER: If the witness looked on the books and says he can't get it, that is all he can state about it. I think the answer is all right.

Exception taken.

Q. Did you locate it in the supplies account of this company?

A. On March 31st 1901, there were 3300.00 and some odd feet of 12 inch pipe in supplies account, but whether it was this pipe or some other 12 inch pipe, I cannot say. It is estimated at 87 cents in the supplies account I notice.

Q. Now Mr. Nixon passing to the year 1901-1902, that is from March 31, 1901 to March 31, 1902 Mr. E. Wheeler on page 8 of his deposition states the aggregate of operating expenses for this year $37003.25 and furnishes a table showing the items that make up this aggregate as follows:

	Alum	$1494.98
2249	Expenses	2528.28
	Fuel	3509.81
Insurance		238.19
Filter Station		2561.46
Pump Station		4603.74
Meter maintenance, &c.		1084.08
Repairs		2924.79
Salaries		8391.82
Taxes		8509.76
Water Rates Litigation		1156.34

making the above aggregate. Now I will ask you what you have found to be the correct aggregate according to your examination of the books and opinion as an expert of the operating expenses for this year?

A. It is as follows:

Alum	$1454.98
Insurance	140.69
Expenses	954.63
Taxes	8489.47
Fuel	3509.81
Pump Station	3642.65
Repairs	1922.82
Salaries	6124.97
Filter Station	2364.81
Meters Maintenance & Rep'rs	1084.08
Total	$29,688.91

2250 Q. Now Mr. Nixon your aggre*ag*te of the operating expenses for this year differs as shown by your answer to the preceding question from that given by Mr. Wheeler. I will ask you to take up the several items of this account and explain where the differences are and your reasons for the same?

A. The first difference that occurs is in Repair account where General E. Wheeler has $2924.79 charged and the books show $2669.19, a difference of $255.60, and I find the following differences in addition which arise from deductions and disallowances from the amounts charged on the books; the first being Insurance account where the books and Mr. Wheeler have $238.19 charged, and I have found as proper $140.69, having excluded $25.00 paid the American Surety Company for bond of Mr. Kimball, $12.50 for bond of Mr. Roberts, $30.00 paid Mr. Charles F. Park as surety and $30.00 paid to Mr. William Wheeler as surety.

On Taxes, Mr. Wheeler and the books both have $8509.76 charged from which I have excluded $20.29 paid on property out in the country and not used for water works purposes, leaving $8489.47 as the proper amount of this account.

For Pump Station Mr. Wheeler and the books show charged $4603.74 in this account. I find stock on hands at the beginning of the year $693.09 and at the end of the year carried to supply account $553.33 and the new Pumping Machinery account $1100.85 making total of $1684.15, from which I have deducted the stock on hands at the beginning of the year, $693.09 as stated, leaving a balance or excess of stock of $961.09 for this year, which I have deducted from the net balance of this account as stated, reducing the account to $3642.65 as the proper amount.

On Repairs account the books show $2669.19; Mr. Wheeler has charged $2924.79. I find as the proper amount of this item $1922.82 and have excluded the following items amounting to $767.64, being paid to C. A. Rosenbeck painting extension to Pump Station
2251 $75.00, of which $25.00 is improperly charged to Repair account, paid to B. B. Dallas for making and erecting breeching for boilers $138.50, which is improperly charged to Repair account as an operating expense, being a construction or machinery item, paid to C. A. Rosenbeck and company for painting inside of Pump Station $98.00, improperly charged to Repair account as an

operating expense, being a construction or maintenance item, paid to A. Greenwood and company for painting Filter Station $70.00 which is improperly charged to Repair account as an operating expense, paid to Southern Brass and Iron Company for pipe covering $14.14 not properly chargeable to Repair account, paid to H. R. Worthington Pump Company for two new Vacuum Pumps at $176.00 and $124.00 and one new Brass lined boiler feed pump at $122.00, all making $422.00 not properly chargeable to Repair account as an operating expense, being a construction or machinery item.

Salaries; the amount charged by Mr. Wheeler and the books is $8391.82, which I find, after deductions, as a proper charge for this item $6124.97 and have excluded $2266.85 made up of the following items; one-half Mr. Kimball's salary $1000.00, one-half of William Wheeler's salary $514.24 and one-half of Mr. E. Wheeler's salary $752.61, the other half of their salaries properly going to Construction account.

Filter Station charged by both the books and Mr. Wheeler's statement at $2561.46, which amount I have reduced as proper for this account to $2364.81 and excluded $196.65 made up of the excess of Stock account for that year, the amount of $196.65 at the end of that year having been carried from this account to Supplies account, and thus reducing the net balance of this account as stated to $2364.81.

Expense account charged on the books and by Mr. Wheeler's statement at $2528.28. I have found as a proper charge of
2252 this account $954.63, and have excluded items amounting to $1573.65. being the following: "Paid for a new typewriter $91.50" and charged to Expense account which should have been charged to office furniture, or if Expense account, distributed through more than one year. "May 25th 1901, contribution to flood suff-ers, Elizabethton, Tennessee, $10.00" which is not a proper operating expense. "Expenses in entertainment of H. M. Pason and Company of Boston, $4.94" is not a proper operating Expense; "May 29, 1901 to William Wheeler, trip to Washington $270.00" and expenses ditto $108.46; trip to New York $40.00, expenses ditto $22.50, total $440.96 charged to Expense account without showing any benefit to the company for the expenditure. "June 7th 1901, paid to F. C. Kimball for expense of trip to Boston with a side trip to Providence and Nashville, $148.30" charged to Expense account. "May 15, 1901 A. Greenwood and company for painting and papering office $20.00" charged to Expense account. This charge like others for the same work should be charged to office building as it is not an operating expense. "July 8, 1901, to Forbes Lithographing Company for 1000 mortgage bonds, $55.00" charged to Expense account: "American Bank Note Company for lithographing bonds and stock $42.50" charged to Expense account; "July 1, 1901 Harry Galbraith refunded water bill under recommendation of F. C. K. $1.62, charged to Expense account: "July 1, 1901 S. M. Littleton refunded water bill on letter of F. C. K. $4.63" and charged to Operating Expenses: "July 1901 Thomas Dodd Boston

250 Knoxville Amendments $5.25" without any explanation, but charged as an operating expense: "September 23, 1901 to A. H. Daily for injury to mule in construction work $125.00" charged to Operating Expenses: "October 1st, 1901, for costs of case Knoxville Water Company against City $25.85 charged to Expenses, and should be charged to water rates litigation: "October 26, 1901, for contribution to Reception to Captain Hobson $3.00" charged
2253 to Operating Expenses "October 1, 1901 to S. M. Littleton $4.63 refunded his water bill as per letter F. C. K." and charged to Expense account; "January 4, 1902 for copy of Briefs $14.50" charged to Expense account, should be charged to Water Rates Litigation; "December 28, 1901 petty cash expenses 'Christmas Remembrances $88.25' " charged to Expense account as operating expenses, and William Wheeler in salaries and expenses at Boston and trips to New York and Washington Expense account $218.27 and $269.45 charged to operating Expenses, which as stated reduce this Expense account from $2528.28 to $954.63.

I have allowed the items Alum $1454.98 as charged through this account is $184.20 in excess of previous years accounted for in part by the use of 7250# more alum at $1.65, $119.60, leaving $64.60 increase not accounted for. I have also allowed the charges for $697.20 for meter maintenance, $386.38 meter repairs and $78.30 for reservoir repairs and cleaning, without change; also the uncollectible claim or reclamation of $42.97 against Hawley Down Draft Furnace Company. The last two items I have added to Repairs Account, making the total amount of this account $1922.82. These items make up the total of proper operating expenses for the year March 31st 1901 to same date 1902 at $29,688.91. I excluded the items of $1156.34 for Water Rates Litigation as not a proper charge in this account.

Q. Mr. Nixon what was the amount of construction done by the Water Company during this year, and the amount of engineering and contractor's profits that are figured into Mr. Wheeler's estimate of fair construction for the same?

A. The amount of construction was $—, and the 20% profits, &c. added were $9673.50 which is $1381.92 for interest, $2763.84 for engineering and $5527.68 for contractor's profits.

Q. You have stated that there was a transfer of supplies
2254 from the Pump and Filter Station account during this year. To what accou-t were they transferred and how accounted for after that date?

A. There were carried from the Pump Station account to Supply account $553.33 and to "new Pump Machinery account" $1100.85 and from Filter Station to Supply account $196.65, which transfers are explained by Mr. E. Wheeler in his deposition Vol. 2" 2 pages 93-94.

Q. After that date did those enter into the general supply account given in connection with their construction cost of the plant?

A. After that dates these articles would be carried and be a part of the supplies account—carried on the books as a Property account.

Q. Mr. Nixon you have excluded two or three items that were

paid to Worthington and company for Pumping machinery. Will you explain a little more fully the nature of those items and the nature of the machinery, and whether you have seen the same in the plant?

A. As stated before these items consist of two new Vacuum Pumps and one new brass lined boiler feed Pump that are in use at the plant and were purchased on December 6th 1901 as new machinery and added to the Machinery equipment of the plant.

Q. You have excluded certain items of painting in your former answers of certain portions of the plant. Will you state the reasons or ground upon which this exclusion was made?

A. I couldn't consider them as an operating expense located or fixed for that year, and if any expense at all they should be distributed through a series of years corresponding with about the length of time that painting would last, but my idea was that expenses of this character should be covered by the renewal or depreciation allowances that are usually made for works of this character.

Q. You have excluded certain items paid to Mr. William
2255 Wheeler, including a ten days' trip to Washington $270.00 at the rate of $10.00 a day and expenses of that trip $108.46, and another trip to New York $40.00 and $22.50 expenses; also $218.27 and $269.45 paid to the same person. I will ask you whether these sums are in addition to the regular salary of that officer?

A. They are.

Q. Mr. Nixon, Mr. Elbert Wheeler states on page 98 of his deposition that the office rent of $600.00 ceased on the 31st of March 1900, the company having bought an office at that time. Should or not this item be excluded in getting an average of the three years as an extraordinary item and enter into construction account for subsequent years?

A. I rather think it should, but I didn't do it.

Q. Are there any other items or expenses that were extraordinary or abnormal during these years and would not enter into the ordinary operating expenses of the plant; if so what are they and what conditions made them necessary?

A. There are several expenses that were abnormal and at apparently flood tide rates in these years, incident partly to the taking in and consolidation with the Lonsdale-Beaumont water company and other changes and consolidations. One item that appears very much enhanced is the item of fuel, the consumption of which was large on, this account, and the price of coal appears at this time to have been the highest in several years; and there were other expenses that were high during these years.

Q. Now the consolidation of this Lonsdale-Beaumont plant with the Knoxville Water Company is shown to have occurred by transfer on the first of January 1900. You have already stated in separate tables the items of additional expense that enter into Mr. William Wheeler's tables of Operating Expense on account of this L-B plant for all of these years. Now I will ask you how does the item of

fuel for the year 1900-1901 compare with the items of fuel
2256 in the preceding and in the subsequent years?

A. For the year ending April 1st. 1901 it is $5431.15, and for the year ending April 1st. 1902 it is $3509.81 and for the year ending March 31st 1900 it is $4096.69 for fuel including $1069.00 for Lonsdale plant, being $3027.44 for the Knoxville Water Company proper, and was still lower for the six months of 1902-3.

Q. Now I will ask you in regard to the consolidation fee of $965.00 which enters into Mr. Wheeler's estimate for operating expenses for the year 1900-1901, whether that item is extraordinary and would be likely to occur in any other year?

A. I regarded that as an unusual and extraordinary item of expense, and not an ordinary item of operating expenses, being more in the nature of a charge for a charter or organization of a new enterprise and not a proper operating expense to be attached wholly to the operating of that year, but more in the nature of an investment or some expense that should be covered in some other way.

Q. Mr. Nixon you have heretofore stated that there entered into Mr. William Wheeler's estimate of fair construction cost of this plant about $63,000.00 on account of contractor's profits and risks, and something over $32,000.00 for engineering services. Now I want to ask you if any part of these two amounts is found entered on the Income accounts of this company?

A. I have not been able to find a single cent of profit or income derived from these sources credited on the books of the company.

Q. So if they have made this amount in the work of construction it has nowhere been accounted for in the Income accounts of the Company?

2257 A. No sir it has not.

Q. Does it enter into the Income account as heretofore presented to you for certain years to any extent whatever?

A. It does not; the Income account heretofore presented is derived entirely from water, taps, supplies and some other small receipts.

Q. Mr. Nixon as to the water company carrying and paying for as an operating expense casualty and boiler insurance to cover accidents and risks in construction, have they carried such insurance?

A. Yes sir I find charged such things.

Q. I will ask you whether or not the books show and Mr. Elbert Wheeler has included in his account of operating expenses damages paid for accidents occurring in construction?

A. I find some items of that character.

Q. How does it appear from the books that the construction was done, whether by the company or a contractor for the years 1899-1900, 1901-2?

A. The construction of those years wasn't very great and was done by the company as the books show, so far as I could ascertain.

Q. How do the books show that construction was done in the erection of the original plant?

A. Done by the company.

Q. And the books show that the salaries of the officers, including

engineers as well as the employés, were paid by the company, do they?

A. Yes sir.

Q. As a matter of bookkeeping Mr. Nixon, I will ask you if these supposed profits and risks of contractor's and engineering aggregating together in the neighborhood of $95,000.00 and which enter into the construction account of Mr. William Wheeler should
2258 be estimated for purposes of determining depreciation fund and of the amount upon which interest should be paid, whether or not they should also appear upon the Income side of the account of the company?

A. I should think so.

Q. Mr. Nixon you have examined the books, maps, plans, vouchers, &c, of this company. I will ask you how the construction, operation and business generally of this company has been conducted with reference to construction and business done within the city and on the outside of the city; I mean whether or not there has been kept or whether there has been any attempt to keep a separation in any of these matters from which you can determine what construction or part of the construction account applies to property outside and inside the city; what operating expenses apply to the service outside and inside the city, and what revenues were received outside and inside the city?

A. The books show all this business kept together, intermingled and intermixed, and that there has been no attempt to keep separate the construction, operation or Income accounts that I have been able to discover.

Q. Is it possible for you as a bookkeeper, or anyone as a bookkeeper, to determine any of these matters from anything afforded by the books, maps, plans, vouchers or anything else that you find in the company's office?

A. I don't believe it would be possible for anybody, in any reasonable length of time, to make these separations in the records unless it be estimates purely.

Q. Is there found any basis for estimates by which it could be reasonably approximated?

A. No reasonable basis of estimate. The basis would have to be estimated.

Q. Now Mr. Nixon Mr. William Wheeler on page 187 of
2259 his deposition has estimated that 17.61 of the value of this plant lies outside the city and 82.39 of the plant lies inside the city. Now assuming that the water is supplied from both inside and outside the city by the plant, including the pumping filter station, &c, situated inside the city, I want to ask you whether the following division of the operating expenses of this plant made by Mr. Elbert Wheeler is reasonable, and if not what you would deem a reasonable adjustment of the matter? I take his separation of operating expenses as divided between the city proper and outside the city for the year 1900-1901, first which appears on page 5 of his deposition:

	Entire plant.	City proper.	Leaving outside city.
Alum	$1310.78	$1157.68	$159.10
Expense	2976.16	2916.64	60.02
Fuel	5431.15	4796.79	734.36
Insurance	564.43	547.17	17.26
Filter Station	2270.28	2247.58	22.70
Pump Station	3948.19	3908.71	39.48
Repairs	3287.82	3074.11	213.71
Salaries	7805.06	7054.55	780.51
Taxes	8182.02	8161.73	20.24

Now I will ask you whether this is a fair division of the operating expenses between the city proper and the properties lying outside the city and if not what you consider would be a proper adjustment of that matter?

A. These divisions do not appear to me as a fair division or a simple separation, but very complicated, and I should think a fairer method would be the one pursued by the Master in the Chattanooga Water case where the percentage of Income was used for fixing the percentage of expenses between inside and outside the city.

Q. Now Mr. Nixon, as a matter of fact where water is supplied from a single plant to different localities lying at different distances from the station of the company, is it more or less expensive to supply the more remote districts than those districts lying nearer the station, and if more expensive, why?

2260

Plaintiff excepts to the question as calling for expert knowledge in water works cases which this witness has not shown himself the possessor of.

Overruled. Exception taken.

A. This question is subject to so many and various conditions that would enter into the matter that it would require, I should think a detailed examination before an accurate estimate could be made, but on considering the situation in this city in a general way, I should say if there was any difference in the expense, it is more expensive outside than inside. There is the pressure, friction and distant scattered services and consumption all to be taken into consideration.

Q. Now what per cent. of the entire operating expense for this year is assigned by Mr. Wheeler to the service rendered outside the city, taking the whole expense as stated at $35,775.89 and the amount assigned for services outside the city at $1940.93?

A. About five per cent.

Q. Mr. Nixon I will ask you to examine the separation of operating expenses made between the city proper and outside the city, found on page 8 of Elbert Wheeler's deposition and state whether or not the answers you have made with reference to the table of operating expenses and their separation for the preceding year apply also to this year?

A. Yes sir they apply to this year.

Q. Mr. Nixon have you made an examination of the operating ex-

penses for the year beginning March 31, 1902 and ending March 31, 1903 or any part of it?

2261 A. I have made up the data for an examination of the first six months of that year, but hav'n't it completed so as to report on it at this time.

Q. Would it be practicable, without examining the entire year, to make up a satisfactory statement?

A. I think not; too much of it would be estimated.

Q. Why have you not examined the whole year?

Mr. CALDWELL: I object to that question because the record shows that it is on account of the ruling of the court that it is not proper.

A. Because my examination was limited to the 30th of September 1902.

Q. Mr. Nixon state whether or not anything has been paid into the treasury of this company on account of the capital stock of the company, and whether or not the books show that no amount of that sort has been paid in?

Mr. CALDWELL: We object to the question as irrelevant and immaterial.

Overruled. Exception taken.

A. The books show no receipts whatever from capital stock and in fact there is no mention of capital stock except that amount of $250,000.00 is used in the estimate of original construction and increases the original construction by $250,000.00.

Q. Mr. Nixon, it appears in this record that $200,000.00 of original stock was issued at or about the construction period of this plant and that $50,000.00 more was issued sometime between the original construction period and 1891. Have you estimated the reasonable cost of the construction work done up to December 31, 1891, and if so what did it amount to in the aggregate?

Mr. CALDWELL: I regard the question as arguing the case in the testimony.

Sustained.

2262 Q. I will ask you to state Mr. Nixon if you have made up in the aggregate the reasonable cost of the construction of this plant up to Deecmber 31, 1891, and if so what it amounts to in the aggregate?

Mr. CALDWELL: We except to the question.

Overruled. Exception taken.

Q. I don't mean to ask you as to the cost of the parts of the plant then existing, but of the cost of all the work that had been done up to that time?

Mr. CALDWELL: We object to that.

Overruled. Exception taken.

A. I have endeavored to ascertain the actual cost of the plant, being its original construction and the betterments or additions up to January 31, 1891, and my result of the cost of original construc-

tion was from $110,000.00 to $112,000.00, and of the additions or betterments, as the books term it, amount to from $37,000.00 to $40,000.00, the actual cost in cash of the plant being to January the 31st 1891 about $150,000.00

Q. At what amount does the construction during these two periods enter into the estimates of Mr. William Wheeler of the fair construction cost of this plant?

A. On page 100, Vol. 1, in his "Summary to March 31, 1901," $221,943.88.

Q. Does his estimate there include real estate and did you include real estate?

A. Yes sir his estimate includes real estate $11,650.00, mine includes real estate $10,000.00 or $7800.00, I forget which, $7800.00, I believe, I don't remember now.

Q. Mr. Nixon under a construction contract dated November 17, 1893, between the Knoxville Water Company and Wheeler and Parks which purports to transfer the North Knoxville plant to the Water Company and to employ Wheeler and Parks to do the
2263 construction work thereafter for the Knoxville Water Company, and in payment to issue preferred and common stock of the company in equal amounts to Wheeler and Parks, certain construction work was done by that company at the prices therein fixed. I will ask you to state at what estimated cost the North Knoxville plant enters into the estimate of fair construction cost of this plant as of the date of that contract, and also the estimated cost of work done under that contract for the Knoxville Water Company by Wheeler and Parks?

Mr. CALDWELL: Plaintiff excepts to so much of the foregoing question as attempts to recite and construe the contract between Wheeler and Parks and the Knoxville Water Company.

Sustained so far as he states the contract in his question without quoting therefrom, but the witness may answer.

A.—

On pages 35 and 36 Mr. William Wheeler shows the cost of pipes and appurtenances in North Knoxville with 20% added, for the year 1891 as.....	$32271.55
On pages 39 and 40 he shows the same for the year 1892-3 including 20% added, ...	394.32
On page 101, construction for the year 1893-4 including $1263.42 for North Knoxville with the 20% added,..	27964.51
On page 102, construction for the years 1894-5, including the 20% added, ...	106573.11
On page 102-3 the entire construction for the year 1895-6 including the 20%, ...	41610.54
On page 103 entire construction for year 1896-7 including the 20% added, ...	12510.45
Making a total to March 31, 1897, of.....	$221324.48

Mr. Elbert Wheeler states on page 47, Vol. 2 that all the Wheeler

and Parks construction for which payments were in stock
2264 was completed in 1897, and construction after that year was paid for in cash. He also gives on the same page details of amounts paid Wheeler and Parks under construction contract of November 17, 1893 as follows:

Year.	Common stock.	Preferred stock.	Total com. & pref.	Cash.
1893–'4.....	$150,000	$175,000	$325,000	$22784.17
1894–'5.....	200,000	104,500	304,500	8379.30
1895–'6.....	32,500	13,500	46,000	6678.89
1896–'7.....	7,500	2,000	9,500	18504.21
Totals.....	$390,000	$295,000	$685,000	$56346.57

Total construction, including 20%.....	$221,324.48
Cash paid on same.....	56,346.57
Balance paid in stock.....	164,977.91
Total payments of cash and in stock.....	741,346.57
Total construction including 20% added.....	221,324.48
Payments exceed construction.....	520,022.09

The further taking of depositions was adjourned until Tuesday morning, September 8th, 1903.

2265 TUESDAY, *September 8th*, 1903.

The further taking of depositions was resumed.

Continuation of direct examination of W. M. NIXON.

Examination by Mr. PICKLE:

Q. I will ask you Mr. Nixon to state what is the aggregate amount that enters into the estimate of fair construction cost by William Wheeler of the North Knoxville Plant and of the construction in addition made under that contract. State the total amount shown to have been paid, the amount paid in cash and the amount for which bonds were issued?

A. As set forth fully in the preceding answer, the total amount of this construction is $221324.48; the amount of cash paid on same is $56346.57; the balance remaining to be paid in stock is $164977.91 which was paid for in Preferred stock $295000.00 and of Common stock $390000.00.

Q. Now does the estimate of $221324.48 embrace the 20% for contractor's profits, engineering, &c.?

A. It does.

Q. Now how much does the amount of stock, Preferred and Common, exceed the estimated amount of construction paid in stock, and how much does Preferred stock alone exceed this amount?

A. As stated, this balance on construction is $164977.91. The total payments of the same in stock amount to $685000.00, so that the stock payments at par exceed this amount by $520022.09; the Preferred stock exceeds this amount $130022.09.

Q. Mr. Nixon, Mr. Elbert Wheeler in rendering construction account from 1884 or rather 1882 to 1891 has stated it as original stock $200,000.00, additional stock $50,000.00, bonds, original, $125,000.00, bonds additional $25,000.00, debentures $85,000.00 making $485,000.00. Now I will ask you what amount,
2266 according to his estimates of fair construction had been invested in this plant up to December 31, 1891?

A. According to his estimate, including the 20% added, the amount was $221,943.88.

Q. Now Mr. Nixon what is your estimate of the cost of the work that entered into this plant up to that date?

A. About $150,000.00 was expended through Loweree's administration and Martine's.

Q. Does that come up to December 1891?

A. It does, unless there is some Wheeler and Park's construction included in here of which I have no account.

Q. How much does this construction account, consisting of stock and bonds, exceed Mr. Wheeler's estimate, and how much does it exceed your estimate of what had gone into the plant at that date?

A. This amount exceeds Mr. Wheeler's estimate up to this date by $263,056.12 and it exceeds my estimate by $335,000.00.

Q. Mr. Nixon do the books show at what amounts the several issues of bonds went into the plant or was entered on the books as going into the plant?

A. They do not, as I have been able to find.

Q. Perhaps you do not understand my question: Do they show how much of the proceeds of the bonds were entered on the books as going into the plant, if so, state how much is entered on the books as having been realized from each issue of bonds?

A. I find from an investigation of the books that of the $125,000.00 issue about $110,000.00 or $112,000.00 went into the plant, and of the $85,000.00 debentures $59,000.00 and some odd dollars went into the treasury of the company. The second issue of $25,000.00 of bonds seems to have been credited to the account of Mr. George P. Sheldon without going into the treasury of the company. This issue of $25,000.00 was credited to his account as $23,750.00.

2267 Q. This is what the books show in regard to the passing into the treasury of the proceeds of these bonds, is it?

A. That is the result of my investigation.

Q. Who appears from the books to have had control or ownership of the plant during the period when these bonds or proceeds were thus placed upon the books of the company?

A. The financial affairs of the company seem to have been entirely in the hands of Mr. George P. Sheldon from 1883 up to the late '80's.

Q. I will ask you whether or not it appears from the books of the

company that Mr. Sheldon checked upon the assets of the company, and if so to what amount?

A. Mr. Sheldon appears to have had the handling of the entire finances of the company and his account is credited with interest to the amount of $36,068.52. Deducting some expense item and credits the net amount is $35,424.77.

Q. Mr. Nixon assuming as Mr. Elbert Wheeler's statement of the construction account does, that the $250,000.00 of stock was paid in, was there any necessity to have issued these bonds prior to 1891 even upon the basis of Mr. William Wheeler's estimates of the amount of money that went into the plant?

Mr. CALDWELL: I object to the question as irrelevant, immaterial and calling for a statement of the witness upon a point that he cannot have any knowledge.

Over-ruled. Exception taken.

A. If the $250,000.00 of stock had been paid in by the estimates of Mr. William Wheeler there would have been no necessity for more money being raised by issuance of further securities until the construction of the North Knoxville extensions and additional equipment when the $150,000.00 of bonds would have been necessary, and when the Lonsdale-Beaumont property was acquired in 1899-1900 an additional $100,000.00 of securities would have
2268 been necessary either in the issuance of other bonds or the assumption of the bonds of the Lonsdale-Beaumont company to that amount.

Q. Now according to your estimates of fair construction cost of what had entered into this plant, when would the first bonds have been necessary if the original stock of $250,000.00 had been paid in?

A. My estimate is based on my previous answer, or rather on Mr. Wheeler's estimates revised.

Q. Well now there was $250,000.00 of stock issued prior to December 1891 and your estimate of construction up to that time was $150,000.00 excluding the complications of the North Knoxville and Lonsdale plant. How much would have been left in the treasury of that $250,000.00 excluding your estimate of the construction cost up to December 1891—excluding the Lonsdale-Beaumont and North Knoxville complications?

A. About $100,000.00 as I understand the question.

Q. Mr. Nixon, will you state the amount of interest exclusive of the interest on bonds paid annually from 1883 up to 1891 and also the amount paid on coupons of the bonds, if you can?

A. The entire interest paid during that period from the books is net $115,349.50. The interest on bonds and coupons amounted to $104,847.15, or an average of about $13,106.00 per annum.

Q. You hav-n't stated it annually. Can you do so?

A. Yes sir, interest and discounts on bonds for

1883-'4	$13,940.00
1884-'5	14,703.05
1885-'6	8,877.10
1886-'7	18,012.00

1887-'8	13,710.00	
1888-'9	13,710.00	
1889-'90	14,070.00	
1890-'1	7,825.00	
		$104,847.15

2269 The books do not separate interest on bonds and coupons sufficiently to make the distinction; in fact they show that money was frequently borrowed to pay the interest on the bonds and coupons, which complicates the interest account very much on the books.

Q. Do the books show that interest was paid on other amounts than on bonds?

A. Oh yes sir, they were borrowing money all the time and paying bank interest.

Q. Does this $104,847.15 include discounts on bonds, that is the difference between the face value of the bonds and the amounts for which the proceeds are entered upon the books of the company?

A. I don't think it does, except the first items perhaps includes $9,500.00 that is denominated on the books "Discount."

Q. Mr. Nixon, Mr. Elbert Wheeler, the Treasurer of this company states the construction account as shown by his books from December 1891 to March 31st, 1901, shown on page 14 of his deposition, to be as follows:

First Mortgage Bonds	$150,000.00
Debenture Certificates	85,000.00
Capital Stock (Preferred)	295,000.00
" " (Common)	645,000.00
Notes Payable	251,500.00
Accounts	44.74
Elbert Wheeler, Treasurer	43,000.00
Depreciation Fund reinvested in plant	19,344.94
Aggregate	$1,488,889.68

How much does this amount exceed Mr. William Wheeler's estimate of fair construction cost that had entered into this plant up to that date including his 20% for contractor's profits, engineering, &c.?

A. This aggregate amount of securities exceeds the total estimate of Mr. William Wheeler to the same date, including 20% $777,-520.17, being more than twice the amount of the estimate.

2270 Q. Have you completed an estimate of the cost of the plant at that date, to-wit: March 30, 1901?

A. No I have not.

Q. Now it appears that of the above list of liabilities given by Mr. Elbert Wheeler as construction cost that all of the same are interest bearing except the sum of $645,000.00 Common stock. How much do the interest bearing liabilities contained in this schedule exceed Mr. William Wheeler's estimate of fair construction cost?

Mr. CALDWELL: Plaintiff declines to accept the statement that all

of these securities except the one indicated bear interest, or that the statement of the witness, Elbert Wheeler so shows.

A. Deducting the $645,000.00 from the foregoing aggregate of securities leaves $843,889.68, and this amount exceeds the estimate of Mr. William Wheeler of the same date by the sum of $132,510.17.

Q. Now if Mr. Wheeler's estimates are excessive, the amount of interest bearing liabilities on this hypothesis would be still greater to the amount of that excess, would they not?

A. They would.

Q. Now Mr. Nixon in disposing of certain items, such as painting, &c., that are supposed to be distributable over several years in the operating expense account of this company, you mention the fact that some of these items should be taken care of to some extent by depreciation fund or rather a renewal or replacement fund. I will ask you what per cent. of allowance of renewal or replacement fund you had in mind when going over those items?

Mr. CALDWELL: We object to that. I would rather he would state what is right rather than what he had in mind.

A. The items of painting standpipe and repainting buildings and some expenses of that character that extend over several years I excluded from the yearly operating expense accounts under
2271 the idea that these expenses should be covered by a renewal or replacement fund that is usual to be provided for on the value of the plant. The per cent. that I have seen stated and discussed, mostly in the Chattanooga case, in this case and some other cases was two per cent. Mr. Wheeler states it in one case at one per cent., up in New England somewhere.

Q. You had in mind there would be a replacement fund of about two per cent.?

A. Yes sir I think my answer explains my idea.

Q. In the estimates of Mr. William Wheeler of the fair construction cost of this plant he has figured in the 20 per cent. 3/21 of that 20 per cent. on account of money lying idle during the period of construction. I will ask you as a practical man from your experience in construction and your knowledge of the construction of this plant what per cent. would be properly allowable on that account and your reasons for it, taking the fair cost of construction of the plant as the basis?

A. Taking into consideration the fact that only the labor and a part of the materials would require cash down payments, and the further fact that a part of the construction of a plant of this character would be available as soon as completed, and the further fact that cast iron pipe and perhaps other materials of that character can be purchased on three and four months' time, and that machinery is usually paid for in installments after erection and operation, that not exceeding one-half of Mr. Wheeler's estimate, or one and a half per cent. on the whole amount would be, in my opinion, ample to cover the contingencies explained.

Q. Now from the books of this company does it appear whether or not they carried any money in the treasury during any period,

or does it appear that it was provided by borrowing or otherwise when needed, from the nature of the accounts as you examined them?

A. I don't recall to have observed a very heavy cash balance
2272 on hands on the books that I have examined.

Q. Mr. Nixon how many vitrified brick enter into this plant according to the fair construction cost of Mr. William Wheeler?

A. 264,500.

Q. Have you been able to locate that number of vitrified brick in the plant as yet?

A. I am not ready to report on that question. The purchases of brick filed in this case show only 47,900 vitrified brick.

Q. Now Mr. Nixon passing to the income account which you have already given for the years 1899-1900, 1900-1901, 1901-1902. I desire some explanation in connection with them. I notice that for each of those years you credit as abatements and rebates the followings sums on water collections:

For the year 1899-1900 $3,802.67.
" " " 1900-1901 4,516.90.
" " " 1901-1902 4,829.66.

I desire you to separate the abatements from the rebates and show the amount of each for each of these years?

A. The separation is as follows:

Year.	Rebates.	Year.	Abatements.
1899–1900	$259.59	1899–1900	$3,543.08
1900–1901	292.89	1900–1901	4,224.01
1901–1902	327.65	1901–1902	4,502.01
	$880.13		$12,269.10

an average for the three years $293.38.

an average — the three years $4089.70.

Q. What are abatements as used in this table?

A. Abatements are discounts and reductions of water bills in accordance with the rules and regulations of the water company.

Q. On what account?

A. On prompt payment, payment by a certain date in compliance with the regulations of the water company.

Q. What are rebates used in this table?

A. Rebates as I understand are corrections, refunds and
2273 readjustments of water bills.

Q. What would have been the water collections of this company for the years stated under a regulation, schedule or tariff of rates allowing no abatements. Give it for each year?

Mr. CALDWELL: I don't think that time ought to be taken up in adding up these small additions.

A. Adding these abatements to the water collections for these years would give for the year 1899-1900 $90,195.05; for the year 1900-1901, $97,639.88; for the year 1901-1902, $106,914.05.

Q. Mr. Nixon in the income statement already referred to I see you have added to the net water collections of each of these years the following amounts: For the year 1899-1900, $1776.60 for taps and for the same year on account of supplies, $1292.83 and for the year 1900-1901 taps $878.45, supplies $1,503.91 and for the year 1901-1902 $2,395.84 taps, and $2,646.89 supplies. I will ask you whether or not these taps and supplies accounts are carried on the books of the company as income accounts?

A. The balances of these accounts are incomes and represent incomes.

Q. Are these the balances that you have stated?

A. These are the balances that are carried on the books to the credit side of profit and loss as income or revenue items.

Q. What are taps Mr. Nixon?

A. Taps are services or connections of private parties with the water company.

Q. What makes up this account for these three years for taps as you understand it?

A. The amount collected from the water takers for water connections.

Q. What makes up the supplies account as you understand it?

A. These balances from the Supply account are made up by the excess of credits over charges to Supply account on the

2274 books of the water company.

Q. I will ask you to state, if you hav-n't stated, whether these items are carried as Income account?

A. I have already stated that; they are.

Q. On page 42 of Elbert Wheeler's deposition and on his cross examination he was called upon for a statement of the gross earnings per annum of this company, and in that statement he gives the gross earnings from water collections alone for the year 1899-1900, $78,538.23; for the year 1900-1901, $88,481.39; for the year 1901-1902, $95,452.12. Now I want to ask you what the books of the company show to have been the gross and also the net receipts for water collections for each of those years?

A. The balances on water collections for 1899-1900 $84,483.31 less abatements and rebates $3,802.67, net collections, $80,680.64.

For the year 1900-1901 water tax balance $93,207.08 less abatements and rebates $4.516.90, net balance collections, $88,690.18.

For the year 1901-1902 water tax balance $101,346.91, less abatements and rebates $4,829.66, net balance collections $96,517.25.

Q. I notice that in Mr. Wheeler's statement above referred to he gives for the year 1899-1900 as gross water collections, $78,538.23 while both he and Mr. William Wheeler state that Mr. William Wheeler's salary for that year at one per cent. on the gross water charges was $755.76, while in the operating expense account his salary was allowed at $1105.76. I will ask you if you found any means of explaining these discrepancies in the books, if so, what it is?

Mr. CALDWELL: We object to the argument of the question put in the form of an interrogation?

Over-ruled. Exception taken.

A. I am unable to account for the discrepancies on the
2275 basing of the salaries except on an inference. The difference between the gross water collections as stated by Mr. Wheeler and shown on the books appear to have arisen from his exclusion of the water collections of the Lonsdale-Beaumont water company for that year, amounting to some sixty odd hundred dollars.

Q. Were the expenses of the operation of the Lonsdale-Beaumont plant included in the operating expenses of that year?

A. They were. I excluded them in my statement however.

Q. But those that explain the difference between the basis on which Mr. William Wheeler's compensation is fixed at $755.76 and Mr. Elbert Wheeler's estimate of the actual water collections of $78,538.23?

A. It does not fully explain the discrepancy as $1105.00 at one per cent. would require $110,000.00 of water collections which is more than the books show.

Q. Now for the year 1900-1901 Mr. Elbert Wheeler states the gross water charges at $88,481.39 and you at $93,207.08. I will ask you to examine that account and see if Mr. Wheeler's statement isn't net after deducting abatements and rebates instead of gross?

Objected to by counsel for plaintiff as leading.

Overruled. Exception taken.

A. It appears that in that case Mr. Wheeler has used substantially the net collections after deducting rebates and abatements, his amount being $88,481.39 as stated and my gross amount $93,207.08 and net amount $88,690.18.

Q. What is the difference between Mr. Wheeler's statement and yourself, and in what does it consist?

A. Well the actual difference, if Mr. Wheeler is attempting to give the net collections, is only a small difference of $208.79.

Q. Now is your estimate from the books that much larger than Mr. Wheeler's?

A. It is.

2276 Q. Now what is the difference between Mr. Elbert Wheeler's figures of your net receipts for the year 1901-02?

A. My net amount for the year 1901-02 is $96,517.25 and Mr. Wheeler's $96,452.12, only a small difference, it being $65.13.

Q. Is that difference of yours larger or smaller than his?

A. Mine is that much larger than Mr. Wheeler's.

Q. Now is this comparison on water receipts only excluding taps and supplies as to these years?

A. Yes sir.

Q. Mr. Nixon, have you or not found upon examination of the books that the amount of net receipts for water collections should be modified in any way on account of the amount of uncollected accounts that are carried into each year as compared with the amounts that are carried out of each year; if so, please state the result of that examination, and how the same is modified in that way for each of these three years?

A. I find that the accounts carried into the water collection ac-

count for the year 1899-1900 is about $5400.00 some odd dollars, and the amount carried out at the end of 1901-1902 is $8900 and some odd dollars, the effect being as the balances of water account is used for the income, to reduce the income for these three years by $3442.54 by these accounts.

Q. You mean to reduce the income?

A. If it stood, it would reduce the income, but in making up my statement I have corrected these differences which affect an increase of the water tax balance for the year 1899 by $2168.66, for the year 1901, $208.79 and for the year 1902, $1065.13, being a total increase of the amount as shown by the books of $3442.58 for the term or an average of $1147.53 for the three years.

Q. Give the amount of uncollected water items that are carried into these accounts at the beginning of each year and the amount carried out at the end of each year for these three years and
2277 show what the amount that is carried out exceeds the amount carried in at the beginning of the year for each of these years?

A. It is as follows:

Water Ac.

1899–1900.

Debits:

To uncollected ac's from 1898–'9	$5,476.47
" " See F. C. K. ac	26.25
" Profit and Loss, balance	84,483.31
	$89,986.03

Credits:

By cash collections	$75,591.30
" L.-B. W. Co. "	6,749.60
" uncollected ac's	7,645.13
	$89,986.03

1900–1901.

Debits:

To Stock ac. uncollected ac's	$7,645.13
" Cash deposits refunded	131.76
" Profit and Loss balance	93,207.08
	$100,983.97

Credits:

By Cash collections	$93,130.05
" Stock ac. uncollected ac's.	7,853.95
	$100,983.97

1901–1902.

Debits:	
To Stock, uncollected ac's	$7,853.92
" Deposits refunded	67.60
" Profit and Loss, balance	101,346.91
	$109,268.43
2278 Credits:	
By cash collections	$100,349.38
" Stock unpaid ac's	8,919.05
	$109,268.43

NOTE.—The balances, not the entire receipts from water collections are carried to Income Account.

Recapitulation of Stock Ac's, Uncollected Bills.

1899–'0.

Brought over from '98–'9	$5,476.47
Carried over to 1900–'1	7,645.13
Excess at end of year	$2,168.66

1900–'1.

Bro't over from '99–'00	$7,645.13
Carried to 1901–'02	7,853.92
Excess at end of year	208.79

1901–'2.

Bro't over from 1900–'1	$7,853.92
Carried to 1902–'3	8,919.05
Excess at end of year	$1,065.13

Totals.

Excess for 1899–'00	$2,168.66
" " 1900–'01	208.79
" " 1901–'2	1,065.13
	$3,442.58

Q. What reasons exist and have you observed looking to the supply of water cheaply or otherwise in Knoxville, and if permitted to do so, you may state how it compares with other cities such as Chattanooga and Nashville in this respect?

Mr. CALDWELL: We object to the question.

COMMISSIONER: The comparison with other cities has been
2279 universally ruled out since the beginning of this reference and therefore the witness will not answer as to that.

Mr. CALDWELL: Our objection goes to the former part of the question that it requires expert knowledge in water works cases which this witness has not shown he possesses.

COMMISSIONER: As to that part of the objection as to lack of expert knowledge the objection is over-ruled and the witness may answer.

A. I regard the conditions at Knoxville favorable for supplying good water cheaply, as the supply from the Tennessee river is immediately at hand, the city is compactly built, and the distribution of the water easily accomplished; the altitudes available for pressure are at hand, and the city is situated very close to the coal fields, and therefore favorably situated for water supplying operations.

Q. Mr. Nixon in making estimates of the cost of construction, I will ask you to state whether or not the actual cost as shown by the books of the company have been consulted by you as well as other means of information, and whether actual cost is as good or a better rule for making estimates than a mere estimated cost?

Mr. CALDWELL: We object to that question as it requires expert water works knowledge in such cases, which this witness has shown he does not possess.

Overruled. Exception taken.

A. In all my investigations I have endeavored to use actual cost and facts, and direct information rather than estimates, estimates being exceedingly variable and subject to so many conditions that I do not regard them as reliable as facts and costs and could recite many instances to demonstrate the soundness of my opinion on this question.

2280 Q. Mr. Nixon I will ask you to put in a summary of the Income and Operating Expense Accounts, showing in one table the correct figures of the Income and Operating Expense Account for the years 1899-1900, 1900-1901, 1901-1902 of the Knoxville Water Company as readjusted by the correction of items as hereinbefore testified to by you?

A. It is as follows:

Summary of Income and Expenses of Knoxville Water Company.

	1899-'00.	1900-'01.	1901-'02.	Total.	Average.
Water Tax Balance.....	$84483.31	$93207.08	$101346.91	$279037.30	$93012.43
Add Increase %s.....	2168.66	208.79	1065.13	3442.58	1147.53
Total.....	$86651.97	$93415.87	$102412.04	$282479.88	$94159.96
Less Abatements.....	$3543.08	$4224.01	$4502.01	$12269.10	$4089.70
Rebates.....	259.59	292.89	327.65	880.13	293.38
	$3802.67	$4516.90	$4829.66	$13149.23	$4383.08
Net Water Income.....	$82849.30	$88898.97	$97582.38	$269330.65	$89776.88
Taps.....	1776.60	878.45	2395.84	5050.89	1683.63
Supplies.....	1292.83	1503.91	2646.89	5443.63	1814.54
Total Income.....	$85918.73	$91281.33	$102625.11	$279825.17	$93275.06
Operating Expenses.....	$25466.91	$30827.52	$29688.91	$85983.34	$28661.11
Surplus.....	$60451.82	$60453.81	$72936.20	$193841.83	$64613.94

Q. Now Mr. Nixon have you made up a statement of the fair or actual cost of replacing this plant on the 31st of March 1901 at the prices of material and labor prevailing at that date, and if so, will you file the same and state whether the value of such plant is more or less than its construction cost, and how much either way, and also how much a new plant constructed of wholly new material is worth at that date than the existing plant?

2281 Plaintiff excepts to the question on the ground that the preparation of such an estimate to be of service to the court involves not only the ascertainment of prices of material but also the determination of questions of civil and hydraulic engineering and of technical work physically and otherwise, and therefore such an estimate cannot be made except by one possessing knowledge of the points indicated—that is an expert in water works and similar works, and this witness has not qualified himself in this respect.

Overruled. Exception taken.

The further taking of depositions was adjourned until October 8th 1903 at 9 o'clock A. M.

2282 TUESDAY MORNING,
October 13th, 1903—9:00 o'clock a. m.

The further taking of depositions was resumed,

Continuation of direct examination of W. M. NIXON:

Examination by Mr. PICKLE:

Q. Mr. Nixon waiving for the present the answer to the question asked you on the eve of adjournment of this case, I will now ask you whether or not during the interval of the adjournment you have made further investigations with reference to the cost of construction of the plant of the Knoxville Water Company, and whether you have discovered other excessive charges than those you have already given in the estimate of fair construction cost contained in the deposition of William Wheeler, and if so please state what further items you have discovered?

A. I have made further investigation along this line with the result that I have ascertained or discovered additional excessive charges as follows:

The first item is pipe bridge on Clinch street, page "96." I found this bridge weighs 9033 pounds and cost, estimated by bridge companies, at that time from 4 to 4¼ cents, which at 4¼ cents would be $393.90, cartage and erection $50.00, making total of $443.90, which the company has charged at $725.00, an overcharge of $281.10. On the Deane Pumping Engine at river station (page 64) the charge is $13,175.00, brick foundations $207.60, foundations of stone $87.50, making $13,470.10. Two stuffing boxes and beams $162.00; two suction pipes from stuffing boxes to well $425.00; disconnected and reconnected suction condenser pipes $220.00; discharge pipes and valves, checks and fittings $560.00. We find that this engine could have been bought at that time for $10,500.00, and

its freight and erection $1,125.00, an overcharge of $1,550.00.
2283 Stuffing boxes we find composed of 7400 pounds of cast iron at 5½ cents, including bolts and beams would be $132.00, an overcharge of $30.00. Two suction pipes from stuffing boxes to well we find weigh 7600 and amount to $142.50 each, or $285.00, an overcharge of $140.00. The disconnecting and reconnecting item is not itemized explicitely but is evidently an overcharge of $100.00 at least.

Mr. CALDWELL: We object to the statement of "is evidently an overcharge" as it is a conclusion of the witness and not a statement of fact.

A. The discharge pipes, valves, checks and fittings charged at $560.00 we find composed of 3330 pounds of specials at 3¾ cents $125.00, and valve rod and stand $115.80, making $240.80, an overcharge of $320.00 on this item.

On the Deane engine at filter station, charged on page "54" at $3,000.00 and foundation of concrete $102.15, said to consist of 22 7/10 cubic yards of concrete and 9,000 brick, we have measured said foundation and find that it contains only 18 3/10 cubic yards, while this material would call for 42 3/10 cubic yards, being an overcharge of 23 4/10 cubic yards at $5.47—$128.00.

Mr. CALDWELL: We except to the testimony. The witness says in regard to these items "we find so and so." We object to this testimony going in and having the effect of a joint deposition of Mr. Nixon and Mr. Brown. Mr. Brown has not testified to these matters, and the witness is not authorized to testify except upon his own judgment and opinion.

COMMISSIONER: I think that objection is good. He should have said "I."

The WITNESS: It is just as easy for me to say "I."

A. Also on page "55" the special fittings charged for this
2284 pump at $300.00 without any items showing the separate charges, I find consist of 3,800 pounds of fittings at 3¾ cents, $142.50 and two 12 inch valves, $85.00, the two items amounting to $227.50, or an overcharge on this item of $72.50.

On the Worthington engine, charged on page "93" at $11,865.00, cartage and erection $1,500.00, foundation stones $100.00, brick $189.00, concrete $10.00, one 20 inch suction gate $120.00, one 20 inch discharge gate $112.00, one 20 inch check and by-pass $275.00, and sundry suction and discharge pipe $325.00, and labor, bolts, washers and anchors $175.00, I find that this pump could have been bought at that time for $8,500.00, and the freight $207.50, and that the foundation cost $112.50; that the 20 inch suction pipe cost $95.00; that the 20 inch discharge pipe cost $112.00 the same as charged; the 20 inch check and by-pass, $180.00 and the $500.00 of sundry suction pipe consist of 5,126 pounds of specials at 3¾ cents, $187.23 and $15.00 for supports, total $197.23, and that the brick, 10,500 brick, $142.00 instead of $189.00, making a total overcharge on this item of $5,104.77.

On the 24 inch intake pipe (page 47) charged at 105 feet of 24 inch pipe at $3.75 a foot, $393.75, consists of 96 feet at $2.65 a foot, $254.40; 5 feet of flange, 3700 pounds, $37.50, total $291.90, an overcharge of $101.85.

24 inch sluice gate and setting charged at $250.00 consists of gate at $120.00, fittings and settings $20.10, $146.10, an overcharge of $103.90.

For steam and hand pumping charged at $150.00, at $2.50 a day for 60 days should be 50 cents a day $30.00, and lumber, labor, sand, bags, &c., charged at $450.00 consists of lumber $84.00, bolts and nails $6.00, labor $72.00, sand $25.00 sand bags $12.50, total $209.50, being an overcharge of $310.50.

2285 Also on same page one 24 inch quarter bend charged at $50.00 and setting $60.00, $110.00. This quarter bend weighs 1350 pounds, at 2 cents, $27.10, setting $9.00, total $36.10, an overcharge of $73.90.

Screen well, page 75 and page 79. 3 inch suction pipe screen rail to pump pit charged at $50.00 without any items. It should be not exceeding $30.00, an overcharge of $20.00.

84 feet of 6 inch pipe and 1—6 inch gate charged at $70.00, and labor, tools, &c., $50.00 making $120.00; should be for the pipe at 50 cents a foot $42.00, and the gate at $6.75, $48.75, an overcharge of $71.25.

Overcharges on quantities, pages 47, 46, 61, 90 and 94 for earth excavation at river station 3097 yards should be 2282 2/10 yards, an overcharge of 804 8/10 yards at 30 cents, $241.44.

On pages 23, 46, 47, 61 and 94 rock excavation is charged to the amount of 2329 cubic yards, but the measurements disclose 1902 4/10 cubic yards, being an excess or overcharge of 416 6/10 cubic yards at $1.77½, $781.12.

On page 89 brick and cement charge, 20,000 brick for backing, for enamel brick lining for engine pit at river station at $18.00 per thousand $360.00. This lining was not used and therefore there is an overcharge of $360.00 on this item.

The brick charged at river station on pages 23, 26, 58, 61, 62, 79, 90, 46, 58, 59 and 64 for construction of buildings and adjuncts amounts to 690250 brick. The measurements amount to 559158 brick, a difference of 131,092, which after deducting the above 20,000 and 21092 for a partition wall in the boiler house leaves an excess quantity of 90,000 brick at $13.00 $1170.00.

2286 Concrete at river station, intake tower, page 94, charged 460 yards at $9.00, measurements show 450 8/10 cubic yards, an excess or overcharge in quantity of 9 2/10 cubic yards at $9.00, $81.80.

Brick charged at filter station (page 44) 40,000, page 54, 12,000, page 83, 8,000, page 56, 4,500, page 44 61,000, page 44 46,000, page 51 90,000, page 50 62,000, making a total of 323,500 brick. Measurements show or disclose 304,622 brick in this space, being an excess of 18,878 brick, or an overcharge of say 15,000 brick, at $15.00, $225.00.

Intake tower on page 94, charge for coffer dam 5,000 feet of

lumber, $80.00, hardware, nails, labor, &c., $160.00, making $240.00, and 60 days pumping $150.00, total $390.00. The details of this coffer dam is 8,000 feet of lumber, $112.00, labor $96.00, bolts and nails $10.00, sand and bags $45.00, pumping 60 days at 50 cents $30.00, total $293.00, being an overcharge of $97.00.

Gravity filters charged on pages 55 and 71 as 18 Warren filters $27,100.00; installed by the manufacturers and would have cost at the time not exceeding $1,000.00 per filter, or $18,000.00, or an overcharge of $9,100.00.

Drains, charged on pages 54 and 55. 250 feet of clay pipe at 75 cents, $187.50. 530 feet at 90 cents $522.00, 87 feet at 60 cents $52.20. 4 manholes at $35.00 each, $140.00. 7 catch basins at $10.00 each $70.00. 302 feet of channel at 75 cents a foot, $226.50.

Page 83, 172 feet of channel at 75 cents $129.00, 6 and 8 inch drains and 2 manholes, $150.00.

Pages 61 and 79, river Station, 185 feet of cast iron pipe at 40 cents, $74.00, 100 feet of 8 inch drain at 25 cents, $25.00, should be 780 feet of 8 inch clay pipe at 23 cents, laid $179.40, 87 feet of 6 inch at 20 cents, $17.40, 4 manholes at 30 $120.00, 7 catch
2287 basins at $8.00 each, $56.00; 185 feet of 4 in. soil pipe at 30 cents, $55.50; 474 feet of channel at 16 cents a foot, $75.84; 100 feet of 8 inch drain at 23 cents, $23.00, making a total of $526.14, or an over-charge or excess of $1050.06.

A miscellaneous charge on page "72" at River Station, changing Front Street across Pump Station property, changing 2 force mains, rebuilding stairs, coal chutes and walks, in a lump charge of $520.00. There are no specifications or items, but this charge is evidently excessive to the extent of $200.00 or $300.00.

Boilers, (Page 44) Filter Station one Manning upright boiler charged at $720.00, hauling and foundation $80.00, smoke connections $40.00. Page 55, steam connections $100.00; feed pump and hot well connections $200.00, an over-charge on hauling and erection $50.00; steam connections $50.00, water connections $50.00; total $150.00. Page 70, 60 by 14 feet 3 inch boiler charged at $650.00, settings and foundations $250.00, steam and water connections $100.00, smoke connections $25.00; total $1025.00, an over-charge on price $150.00.

Boilers continued page 63, two 54 by 16 feet boilers installed in 1889, and changed in 1896, charged for boilers and fittings $1150.00, Hawley furnace $1200.00, settings and foundations $700.00, changing position $500.00, steam connections $250. water connections $150.00, smoke connections $40.00 making total of $3990.00.

Page 92. two 66 by 18 boilers and fittings charged at $1800.00, Hawley furnace $1300.00, settings and foundations $900.00, steam and water connections and pipe covering $650.00 smoke connections $250.00, total $4900.00.

Page 92. Induced draft blower engine and fan charged at $690.00, appurtenances and installation $210.00, damper regulator and connections $80.00, smoke connections $250.00, total $1230.00.
2288 From three last items there is charged:—(Page 63.)
Settings and foundations $700.00, Steam connections

$250.00 water connections $150.00, smoke connections $40.00. Page 92; Induced draft $210.00, settings and foundations $900.00, steam and water connections $650.00, smoke connections $250.00, induced draft smoke connections $250.00, total $3400.00. Should be Settings and foundations $518.00, settings and foundations $743.00, settings and foundations $95.00, pump and connections $209.00, heater and connections $172.60, steam connections $273.54, induced draft $25.20, smoke connections $194.70, total $2231.04, over-charge $1168.96.

Charge for pipe laid to March 31 1901 (Vol. 2) 300,084.7/10 feet, $240,614.90, and for laying same $74507.55. This pipe figured out Mr. Wheeler's weight aggregating 6286 tons at an average price of $25.00 a ton, produces $147,150.00. An over-charge on pipe of $18,957.35, and laying at reasonable prices such as testified to by Mr. Ludlow, would amount to $36,843.34, an over-charge on laying of $37,664.21.

In the foregoing computations these over-charges of quantities, the prices charged by the Water Company, have been used.

It is also proper to explain that in the list of over-charges heretofore presented, the prices of some of these quantities and elements were reduced, and the foregoing is subject to correction or adjustment to conform in these particulars.

Q. Are the prices used by you in the foregoing statement the prices with, or without the 20 per cent. added for interest on money or contractor's profits and risks and engineering?

A. They were the cost prices or contractor's or manufacturers prices without such 20 per cent. addition.

Q. Mr. Nixon in your investigation of this plant did you
2289 work in conjunction or in co-operation with anyone, if so with whom?

A. In my first investigation I worked with Messrs. Getaz and Munding, and later in a more thorough and minute investigation, involving measurements and calculations, I worked in conjunction with Professor Charles S. Brown.

Q. How much time have you spent in the investigation of this plant to ascertain its quantities and prices, and cost and value &c.?

A. I should say fully six weeks or two months in the investigation and calculations.

Q. Well in your investigations in connection with others, did you personally go through the matter or rely upon their statements?

A. In most instances I went through the matter personally and made my own figures as well as comparing the figures of others, but not in all instances, as the quantities taken from the plans of the company was done by Prof*fessro* Brown, and I used his results, or assisted him in reaching the same.

Q. Do you mean that you took his statement of the measurements from the plans, is that what you refer to?

A. Yes sir.

Q. Mr. Nixon state whether or not you have during the period, or a considerable portion of the period covered by the construction of this plant, been employed in the purchase of machinery, materials,

&c., and in the construction of plants of a similar character as the one under consideration?

Objected to by counsel for plaintiff as leading.

COMMISSIONER: You may state your answer otherwise than yes or no; state what you were doing then.

A. Yes sir, during this period I purchased boilers, engines, handled brick work, rock and earth excavation and con-
2290 struction that is similar in various degrees to the construction and equipment of the water company's plant.

Q. Now Mr. Nixon I will ask you what method or means you, in conjunction with Professor Brown adopted, in order to ascertain the materials, machinery, buildings, &c., entering into this plant, and the fair prices thereof and the fair cost of the plant. State fully what you did and considered along this line?

A. We made as full and thorough investigation of the quantities and prices, taking into consideration the conditions, time and prevailing markets as it was possible to do, not only searching books and price lists, but confer-ing with contractors, dealers, manufacturers and producers, of the various elements and parts going to make up this plant, securing all the information and reliable data that has been in our power to obtain, using our experience and acquaintance heretofore acquired in these lines.

Q. Where has your field of operation been, Mr. Nixon, in the construction of plants of a similar character as this one, and the purchase of materials, machinery, &c.?

A. Principally in Nashville, also to some extent in Chattanooga and Alabama, and at the Brushy Mountain State Mines and otherwise.

Q. I will ask you whether like or similar conditions exist in those fields as in this?

A. Substantially so.

Q. In the ascertainment of quantities entering into this plant Mr. Nixon, what course did you and Professor Brown pursue?

A. As far as possible we ascertained from the plans and specifications the measurements of quantities, and these we computed, and where possible, verified the same by comparison or an examination of the work erected, and in other instances adopted the
2291 measurements and quantities furnished by the water company. There has been no very great variance in quantities, the most important being indicated in the foregoing.

Q. Did you take any measurements?

A. We took some measurements.

Q. Mr. Nixon have you, or did you in conjunction or co-operation with professor C. S. Brown, make up a statement of the fair cost of replacement of this plant on the 31st of March 1901, making the new plant if not identical, in substantial conformity to the plant existing at that time, but composed of entirely new material and making it as substantial, durable, useful and efficient as the plant of the water company?

A. Yes sir in compliance with the last question at the last hearing,

I took up this work in conjunction with Professor Brown, and it was completed yesterday, and the report or results filed by him in giving his deposition.

Q. I will ask you whether that statement was made up with care and after an examination of details?

A. It was made up with very great care, and after a very thorough examination, and as before stated requiring some six weeks of almost day and night work, and some Sunday labor,

Q. I hand you a statement of replacement of this plant on the 31st of March 1901, which Professor Brown has already made an exhibit and copied in an answer in his deposition. I will ask you whether or not that is the statement to which you refer?

A. This is the statement.

It is agreed by counsel that this statement need not be copied into the deposition of Mr. Nixon, it being identical with that already copied in the deposition of Professor Brown.

Q. Mr. Nixon, what was the fair value of the new plant
2292 thus replaced on the 31st of March 1901?

A. $379,704.77.

Q. Mr. Nixon have you made up in conjunction with Professor Brown a statement of the comparative value of this new plant thus replaced on the 31st of March 1901, and the value of the plant of the Knoxville Water Company as it existed at that date?

A. We made such a comparison, such a statement and report which Professor Brown has included in his deposition.

Q. I hand you a statement that Professor Brown filed and copied in an answer to his deposition purporting to be a statement of the comparative values of old and new plants of March 31st, 1901. I will ask you if this the statement to which you refer in your last answer?

A. This is the statement and shows the comparative value of the existing plant of March 31, 1901, amounting to $244,970.00.

Q. I will ask you whether or not that was the fair value, to wit; $244,970.00 of the existing plant of the Knoxville Water Company on the 31st of March, 1901?

A. That is our judgment, using——

Mr. CALDWELL: We object to the answer, as he has no right to state it is "our judgment." I want him to state it is his judgment.

The WITNESS: Well it is my judgment, and is the result of conservative consideration of the various elements making the same.

Q. Included in the aggregate of $379,704.77, the replacement cost of this plant, I notice that the last item is expense of organization, promotion, &c., $10,000.00 On what account is that allowance made Mr. Nixon?

A. That is allowed to cover the expenses that would be
2293 incurred by a company or corporation undertaking the construction of such a plant, consisting of charges for obtaining the charter and organizing the corporation, formulating financial plans, arranging for the negotiation of securities, if necessary, or

the issuance of securities, and the various and sundry expenses that would be incurred in such an undertaking.

Q. Is that allowance made on the basis of a plant costing $379,704.77.

A. Yes sir, it is rather a full allowance for a plant of that cost, but we wanted it to be ample and fully cover such contingencies.

Q. I notice that you have made various allowances of different per cents on different parts of the plant for contractors' profits and risks? Why did you allow the different per cents on different parts of the plant, or classes of the work?

A. Because I considered such classification proper, some parts of the work entitling a contractor to a greater, and others a less per cent. for profit and risks. This percentage runs from 5% to 20%, aggregating on the river station $6,446.66 on the filter station $6,787.33 and on the pipe system, $15,810.92 or a total of $28,944.91 for contractors' profits, engineering, supervision and contingencies. The general plan is based on 3% for engineering and supervision, including plans and working drawings and specifications, and 5% on pipe and machinery and 15% to 20% on parts of the work subject to more risk and uncertain, and an additional per cent. to cover the omissions and contingencies that would escape in such a compilation of costs and aggregates.

Q. I see you have allowed $6,000.00 for interest on idle capital during construction. On what idea do you base this allowance?

A. This allowance was based on the idea that a company undertaking this construction would find it necessary to make a
2294 financial arrangement for funds as wanted, and in obtaining the funds necessary from time to time from the banks, an allowance to cover this expense would be necessary, and this amount was included as ample to cover such requirements. It would be possible under certain conditions that this expense would be unnecessary; under other conditions it might be essential.

Q. Mr. Nixon have you made an approximate estimate of the cost of this plant up to about the middle of 1884?

A. Yes sir I made as close an estimate as was possible from the old books in existence, and the date that was obtainable.

Q. About what amount had the plant cost say up to the middle of 1884?

A. As heretofore answered the original construction cost was from $110,000.00 to $112,000.00.

Q. Did you carry that original construction cost up to the middle of 1884?

A. I don't remember the date. I carried it until the books were changed. I don't remember the date. I carried it up to the time the books were changed.

Q. Did you make an approximate estimate of the cost of this plant up to the beginning of the year 1891?

A. Yes sir I found the additions and extensions from the original construction up to this time amounted to about $40,000.00, making the total plant at the end of say December 1891 $150,000.00 to $152,000.00 or $153,000.00.

Q. Now assuming as you have testified that the original plant of this company cost $110,000.00 to $112,000.00, and that the remainder of the plant was added by extensions and additions from time to time during the period running from 1884 up to 1901, what would be the effect upon these allowances that you have made for engineering, contractors' profits and risks for the use of idle
2295 money, would it have the effect to increase or diminish that allowance?

A. The effect would be to very greatly diminish these allowances, and in fact to make them almost entirely unnecessary.

Q. If it be a fact that the original plans and specifications for this plant were furnished by the city of Knoxville to the water company, what effect would that have upon the allowance for engineering?

A. It would very greatly reduce this allowance, as the formulation of the plans were based on surveys and measurements, and the getting up of specifications would have been provided, and therefore would materially reduce the necessity of an engineer, or the work that he would be required to furnish.

Q. Now assuming that the extensions and additions to this plant made after the period of original construction were put in under the supervision of salaried officers, and of regular employés of the company who were paid in whole, or nearly so, out of operating expenses, what effect would that have upon these allowances?

A. It would very greatly reduce the necessity for these allowances to the extent, in some instances, of almost eliminating them.

Q. Are, in your opinion, contractors' profits allowable upon work directly by the company without the intervention of a contractor?

A. I should think not.

Q. I will ask you whether or not Mr. Nixon, if they are actually allowed and entered into the construction account of the company upon which interest is thereafter to be provided, if such contractors' profits should also be entered upon the income account of the company?

A. I should think so. This profit, if made, should simply swell the income and earnings of the company.

2296 Q. Mr. Nixon have you examined the books of the water company with reference to the effect of the reduction made by the ordinance of the 31st of March 1901 upon the income of the company from water collections as compared with the rates of the water company, or the income actually derived under the rates of the water company during the year 1901?

A. I have made a general examination of the receipts of the company for water for the year ending March 31st 1901, without going into detail of rating nearly the 4,000 fixtures and water bills for that time, but have taken the aggregates for the quarter and separated the receipts from fixtures and meters of West Knoxville from Knoxville proper, and endeavored to reach an approximately correct basis upon which to apply the comparative rates, and their effect upon the income or revenue or earnings of the water company.

Q. What per cent., according to your investigation and calcula-

tion would the water collections or receipts of the company have been reduced by the City ordinance instead of the company's rates being applied to that year?

A. Applying these rates as equitably as possible, and taking into consideration that the ordinance makes no change in the revenues from the city for fire hydrants, and that the fixture rates in West Knoxville are not uniformly reduced, and considering also the difference in meter rates as applicable also to West Knoxville, the result attained shows a reduction of between 18% and 18½%. I made three tests, using the receipts for the first quarter of 1900, the net receipts or balances for the year, and the gross water receipts for the entire year, and the three per cents were within a small fraction of each other.

Q. Mr. Nixon, what in your opinion would have been the effect upon the consumption of water and increase of revenue, of
2297 the company's furnishing water at the reduced rate of the city's ordinance rather than at its own rates?

Mr. CALDWELL: We object to the question as calling for an answer which cannot amount to more than a guess under the circumstances.

Sustained.

Q. Well I will ask you Mr. Nixon a more general question, whether the effect would have been to increase the consumption of water.

Mr. CALDWELL: We object to the question for the reasons last above stated.

COMMISSIONER: Well it is a well recognized fact that the cheaper the quality the more is used. He may state it that far, but if he undertakes to make any estimate on it, it is incompetent.

The WITNESS: It is generally recognized, as the Commissioner states, that the cheaper, or reduced price of a commodity, increases the consumption, but the extent in this instance would be more or less conjectural.

Q. Now Mr. Nixon I notice while you have allowed some other per cents of replacement, that you have allowed nothing for what is termed by Mr. Wheeler in his deposition "going concern." I will ask you why such an allowance has not been made with reference to this plant, assuming, which is not admitted, that such an allowance is proper in any case. Why has no such allowance been made in this case?

A. I have made no such allowance in this case, as I considered it entirely unnecessary. The furnishing of the water supply was in such demand, and the revenue or earnings from the same in
2298 such immediate attainment, both the city and people standing ready to take the water as soon as furnished, I could see no necessity for an allowance of "going concern" as in this case it was ready to go when in condition to furnish the water.

Q. Well, I will ask you what you refer to when you say the city stood ready to make it a going concern?

A. The books show that the City took a certain number of *of* fire hydrants, and that a great many services were taken and paid for by the consumers immediately upon the starting or operation of the plant, and that the income, or receipts for the first year were $13,000.00 and some odd dollars, and a steady increase for the succeeding years.

Q. Have you made up a statement showing the operation of this plant for the first few years of its existence, and if so, state whether or not the income was sufficient during those years to give it a fair return upon the cost of the plant?

Mr. CALDWELL: I understand that has all been ruled out and I therefore except to the question on that ground as irrelevant and incompetent.

COMMISSIONER: The exception is over-ruled, because it might be that the question of whether the business had been profitable or unprofitable affected the 15% charge of "going concern" or for building up the business.

Exception taken.

A. I have made such an investigation of the books of the Company for the period beginning at the commencement of operations up to December 31st 1891, which shows that the gross receipts amounted, during that term to $209,562.00 and the operating expenses to $110,170.00, and being aware of this condition, I allowed no amount to cover "going concern" in making my statement of replacement.

Counsel for plaintiff notified the witness that they will call
2299 on him for an itemized statement of the account to which he now refers, and expects him to have it on cross examination.

Q. Mr. Nixon, if you have made up a statement, or can do so, showing the result of the operations of this plant during the period that you have mentioned, you will please file the same?

Mr. CALDWELL: We object to the defendant's counsel asking for such statement, as he has just stated (in an argument between counsel) that he would not ask for it.

Gen. PICKLE: Well, I will call for it now.

Mr. CALDWELL: I understood counsel to say that he wouldn't ask for it.

Mr. PICKLE: No sir, I said I wouldn't call for the particulars of operating expenses, or go into those.

The WITNESS: I have such a statement and will file it on my cross examination.

Q. Now Mr. Nixon, assuming that a per cent., or any per cent is to be allowed for "going concern," I will ask you whether or not in your opinion that per cent. should be allowed upon the value of the plant as originally constructed, or should it be placed upon, or based upon, the value of the plant as originally constructed and the additions and betterments made from time to time, and your reasons for the same?

Mr. CALDWELL: We except to the question, because it is a question for the court:

COMMISSIONER: Let him answer.

A. I should certainly say that if such a per cent. was allowed, that it should be a per cent. on the value of the original construction, and not extensions and betterments and improvements in future years.

2300 Cross-examination by J. W. CALDWELL:

Q. Mr. Nixon, you say you are about fifty-three years old?
A. I said fifty-two didn't I?
Q. Well about fifty-two years old?
A. Yes sir.
Q. Where were you educated?
A. Well I wasn't college educated at all. I went to school mostly at Post Oak Springs, Roane County, Tennessee, and got my education, nine-tenths of it, from Colonel John R. Neal.
Q. You began life, as I understand it, as a mere boat clerk?
A. Yes sir, when I left the farm.
Q. About what age was that?
A. About twenty years of age.
Q. How long were you a steam-boat clerk?
A. About a year—steam-boat clerk and ware-house clerk together.
Q. What were your duties in those capacities?
A. The usual duties of a clerk in those capacities comprises the recording of freight handled, making freight bills, and buying supplies for the cook and boat, and to some extent running a hotel, keeping the time, and collecting the money and making the settlements.
Q. After you ceased to be a steam-boat clerk, and went into the wholesale grocery business in some capacity; what was that?
A. For one year I was a clerk in the wholesale grocery house of Martin Brothers, Chattanooga.
Q. Were you a salesman?
A. I was a salesman, and did general all-'round work in the wholesale grocery, acting as salesman, keeping some books and making bills.
Q. And after that you went into the grain business?
A. I then went into the wholesale grocery business in the new house in which I was interested.

2301 Q. What was the nature of the duties you performed in the grain business?

A. Before we enlarged the business into the grain business, I kept the books of the grocery business and handled the correspondence of the house.
Q. Were you a partner in the business?
A. I was interested in the business, yes, sir.
Q. How long did that business continue?
A. From 1874 until 1878.

Q. How and why did it terminate?

A. I withdrew and went into the grain business on my own account with a partner, Mr. Wester.

Q. How long were you a partner with Mr. Wester?

A. About ten years.

Q. Did that cover the period from 1874 until 1878?

A. Yes, sir.

Q. What was the nature of the duties that you performed during those ten years?

A. Principally buying and selling grain and produce, handling the correspondence, which was rather a large correspondence, involving freight rates and work of that nature.

Q. Where was that business conducted?

A. In Chattanooga, the firm name being Nixon & Wester.

Q. So that for five years after the establishment of the Knoxville Water plant, you were a grain merchant in Chattanooga?

A. In the summer of 1887 I was appointed United States Marshal and came to Knoxville and was in charge of the duties of that position at the same time I was still interested in the grain business.

Q. How long did you continue United States Marshal?

A. Until April, 1889.

Q. Prior to that time had you ever appeared in any water
2302 works cases as a witness?

A. No, sir.

Q. Had you ever had any experience in water works matters prior to 1889?

A. No, sir, I never had any experience in water works matters prior to that time.

Q. You say you continued United States Marshal until 1889?

A. Yes, sir.

Q. Then what did you do?

A. Then I went into the iron ore mining business in Alabama in addition to a manufacturing business I was carrying on in the meantime.

Q. How long did you continue in the iron ore mining business?

A. Up until 1894.

Q. And when you left that, what did you do?

A. Well, you might say in the early part of 1895, and after leaving the iron ore and iron manufacturing business, in 1895, I was for some three months United States Income Tax Collector.

Q. Then what did you do?

A. At the termination of that employment I was appointed one of the Prison Commission for the State and was for six years engaged in the duties connected with that business.

Q. You had two other gentlemen associated with you in the same office didn't you?

A. Yes, sir, that is two all the time, the others changed.

Q. Well, what were your duties as Prison Commission?

A. When first appointed in 1895 the immediate duties were the selection of plans, and the employment of an architect and
2303 letting of contracts for the construction of a new penitentiary for the State and its adjuncts, and the opening and equip-

ment of a mining enterprise belonging to the State, and a general preparation for the receipt of the convicts then under lease to be returned to the State on the ensuing January 1st, 1896. Those were my first duties. On the receipt of the convicts, the duties were enlarged, and these convicts were to be provided for and their employment secured, and the prosecution of the construction work was continued until the completion of the Penitentiary and the opening of the mines and its equipments, which work was substantially completed when I retired from the service of the State about the 1st of July, 1901.

Q. Who was the architect for the construction of the new prison?

A. Mr. S. M. Patten.

Q. Who prepared the plans for the new prison?

A. Mr. Patten.

Q. Who made the estimates?

A. Mr. Patten made the estimates and fortified them with bids for the construction of the various parts of the work, so as to sustain his estimates.

Q. Who supervised the construction?

A. The supervision was under the charge of Mr. Patten. His immediate representative was Commissioner Simpson, who remained on the work, and another young man, Mr. Duffy, an engineer represented him during his absence from the work.

Q. You have stated that you were connected with an arrangement of the accounts of the prison. There was a bookkeeper and accountant having that matter in charge, was there not?

A. No, sir, when the convicts came back to the State, what little bookkeeping previously required, was done by a man they
2304 termed a Deputy Warden, but after the return of the convicts to the immediate charge of the State, it became necessary to formulate a system of accounts with distributions, so as to show every kind of expense in the maintenance and employment of the convicts, and a voucher system, similar in some respects to that used by large industrial corporations, was applied, extended and used after its adoption.

Q. Who got up that system?

A. Well, I did the most of it.

Q. Were you assisted by your associate commissioners?

A. No, sir.

Q. Who were you assisted by?

A. I was assisted to some extent by Mr. Mitchell, the Deputy Warden, but mostly at the mines by Mr. Hill, the manager in charge of the mines after he was employed.

Q. What per cent. was Mr. Patten paid for his work as architect?

A. About 2%.

Q. Who paid it?

A. The State.

Q. You said "about 2%;" do you remember exactly what it was?

A. My recollection is he was paid about $4,500.00 on about $220,000.00 of construction.

Q. Is that all the compensation that he received?

A. All of which I am aware, and I think that is all he got.
Q. Did that include the making of plans?
A. Yes, sir, and working drawings, and some supervision.
Q. How much did the other supervisor get?
A. He got $40.00 a month and afterwards $50.00, from the State.
Q. What Mr. Hill do you refer to above?
A. Mr. Jesse T. Hill.
2305 Q. Who opened up the mines?
A. Mr. L. E. Bryant was the engineer in charge that started the opening of the mines.
Q. Was he an engineer?
A. Yes, sir.
Q. Did he continue in charge until they were opened up for working?
A. No, sir, he resigned soon after Mr. Hill was appointed.
Q. Who was in charge after Bryant resigned?
A. We had several engineers. Mr. A. W. Evans was the engineer for I suppose eighteen months, and he was succeeded by Mr. A. H. Wood, and Mr. Wood was succeeded by Mr. J. H. Boling.
Q. There was an engineer in charge there all the time you were a Commissioner, was there not?
A. Yes, sir.
Q. And he supervised all the engineering work?
A. Well, he didn't supervise it exactly; he devised it and submitted plans and so on, which after approval he then reduced to working drawings.
Q. Whom did he submit them to?
A. Well, first to his immediate superior, the manager of the mines, and the manager submitted them to the commissioner in charge of the mines, which during my incumbency, I was Commissioner of Mines.
Q. That is you were on the grounds?
A. I was on the grounds every week.
Q. But you had no more authority than your associates did you?
A. Oh, no, sir.
Q. After you ceased to be Prison Commissioner, what business did you take up?
A. I was employed as General Manager of the Cumberland Coal and Coke Company out on the Tennessee Central.
Q. Is that company still in existence?
2306 A. Yes, sir.
Q. What year were you employed there?
A. From July, 1901, to August 1st, 1902.
Q. That company afterwards went into the hands of a receiver, didn't it?
A. Yes, sir, it went into the hands of a receiver a short time after I left it.
Q. You don't mean to intimate that your leaving it caused it to go into the hands of a receiver, do you?
A. No, sir, the receivership was impending before I left.
Q. What was the nature of your work with that company?

A. The general supervision of the affairs of the company as its executive officer, which duties consisted mainly in the opening and equipment of mines, and the looking after lands of which it owned a large acreage, and the formulation, to some extent of the enlargement and extending of a system of accounts and distribution of expenses of the company.

Q. Now, Mr. Nixon, you have been in active business life about 33 years. During what part of that 33 years have you kept books?

A. Well, I should say probably three years that I was strictly an accountant, but for a great many more years than that I had supervision of books.

Q. Well, you think that upon the experience you have had, you are in a position to call yourself an expert accountant?

A. No, I wouldn't term myself an expert accountant, but I think I am capable of exam-ing and investigating books, and ascertaining results therefrom.

Q. A complicated set of books?

A. Yes, sir, I think if I had time enough I could get into even a complicated set of books.

2307 Q. How do you regard the books of the Knoxville Water Company, as compliated or not?

A. Well, they are somewhat complicated, particularly the books kept during the earlier periods when they had various bookkeepers, and on every change the system of accounts were varied.

Q. Do you think you have thoroughly comprehended them and reached their true effect?

A. I am not prepared to admit that I have minutely comprehended them in all their details, but I think I have ascertained the results.

Q. If I were to ask you for an entirely frank answer, wouldn't you admit that these books are beyond your capacity as an accountant?

A. That would depend upon what you wanted done with them, whether you wanted them balanced, or recast, or reposted.

Q. Well, for all the purposes that such a set of books are usually kept for in a business of this kind; my question is if these books are not beyond your capacity as an accountant?

A. No, sir, I don't think so.

Q. Are you confident on that point?

A. Yes, sir, I am quite satisfied.

Q. I notice you use the term "quite;" you use that as a word of qualification and slight doubt, don't you?

A. No, sir, I use that as a term implying confidence.

Q. As a term of confidence?

A. As a term of confidence.

Q. Now, you are not a hydraulic engineer, are you?

A. No, sir.

Q. Nor a mechanical engineer?

A. No, sir.

Q. Nor a civil engineer?

A. No, sir.

2308 Q. Nor a contractor engaged in the excavation and removal of earth?

A. No sir.

Q. You are not a member of the American Society of Civil Engineers or Mechanical Engineers like Mr. Brown are you?

A. No sir I am not a member of anything except the Democratic party.

Q. Are you an active politician?

A. No sir not at present, and hav'n't been for some time.

Q. You are not a building contractor?

A. No sir I have never done any building by contract. I always did my construction direct.

Q. And you never sold or manufactured cast iron pipe?

A. I never manufactured any; I believe I have sold some.

Q. What quantity have you sold?

A. I don't remember. That has not been very extensive, if any. I used to handle a good deal of pig iron and iron in that way which I took for iron ore.

Q. You never designed a water plant did you?

A. Yes sir with the assistance of Prof. Brown I designed two water plants, or a water plant and an extension thereof at Nashville, one with a capacity of about 250,000 gallons a day.

Q. You mean you did the principal part of the work with the assistance of Mr. Brown?

A. Yes sir.

Q. Who made the plans?

A. We made them together.

Q. Who made the most of them?

A. Well we didn't have any very elaborate plans.

Q. How elaborate were they?

2309 A. Well we took the measurements and elevations and laid out the work and calculated the requirements, and I put it into execution.

Q. Would you accept employment now to design a system of water works?

A. No not that required from me myself technical engineering, but I would secure that if I undertook such employment.

Q. Mr. Brown, to whom you refer, is the gentleman who has testified in this case, isn't he?

A. Yes sir, he is Prof. Chas. S. Brown of the Vanderbilt University.

Q. What was the extent of the pipe line connected with the Prison system of water works at Nashville?

A. Not very extensive; perhaps a total length of three or four miles.

Q. Where is the reservoir situated?

A. The settling basins are east of the Penitentiary on an elevation, and they are about 2,000 feet distant, and the storage reservoirs are on the opposite side, probably 1,500 feet distant, and another supply is from a spring, I should say 4,000 feet distant.

Q. This system is designed to furnish a group of buildings composing the Tennessee State Penitentiary, isn't it?

A. Yes sir.

Q. And in designing and building it you had the aid of Mr. Brown, the other expert witness of the city in this case?

A. I first had the aid and assistence of Mr. Patten, and then with its enlargements and extensions, after Mr. Patten's death I had the assistence of Prof. Brown.

Q. You will not dispute, I assume Mr. Nixon that all the architect's work and engineer's work, and all other expert work required about the construction of that water plant, was furnished by Mr. Patten and Mr. Brown, will you?

2310 A. No sir they furnished the expert and technical information.

The further taking of depositions was adjourned until 9:00 Wednesday morning, October 14th, 1903.

WEDNESDAY MORNING, *October 14th*, 1903—9 o'clock a. m.

The further taking of depositions was continued.

(Continuation of cross-examination WILLIAM NIXON.)

Cross-examination by Mr. CALDWELL:

Q. Was the branch prison at Brushy Mountain being built at the same time that this water works construction was going on at Nashville, Mr. Nixon?

A. No sir; it had been completed before the additions made to the water works at Nashville were undertaken. The water works at Nashville was really built in three stages.

Q. Was any of the construction going on while the branch prison was being built?

A. Oh yes, the construction of the main penitentiary and branch prison at Burushy Mountain were built at the same time.

Q. I understand that you were more particularly in charge of the Bruchy Mountain establishment?

A. The statute specifying that one of the commissioners should specially supervise each branch, one of which being the Brushy Mountain division, was not passed until 1897, when I then became the special commissioner for the Brushy Mountain State Mine department, but during the entire construction, and even afterwards, I was at both places nearly every week about half of the time at each; after the completion of the construction work the

2311 manager of the mining department was dispensed with and I discharged the duties of that position as well as those of Commissioner.

Q. Can you tell me this morning the exact length of the pipe system at the main prison water works?

A. Well you would have to specify what you want—what that should consist of—what pipe you inquire about?

Q. Well I mean the collecting and the distributing system of pipes?

A. Well I can detail from memory.

Q. I don't care for the details from memory; I want the exact length, or if you can't give that, the approximate length of the pipe system?

A. I should say from memory that the length of the pipe mains are probably 12,000 or 15,000 feet, and the distributing pipes, covering all the buildings and factories and prison department, including 1,000 water closets and about 800 or 900 wash basins, would possibly aggregate 50% more.

Q. The last item that you mentioned as being 50% more than the first one, is small service pipes, isn't it?

A. Yes sir they are from 2 to 3 inches down.

Q. Wrought iron or cast iron?

A. The small pipes are galvanized wrought iron.

Q. Are they serviceable and proper for that purpose?

A. Yes sir they have been very satisfactory so far except where they were attacked with electricity in an instance or two.

Q. What is the largest pipe in that whole system?

A. Well the very largest I believe is 10 or 12 inches, at the suction at the river.

Q. How much of that is there?

A. Not very much; about 100 or 200 feet.

Q. How much pipe over the size of 6 inches is there, over
2312 this 100 or 200 feet?

A. I believe there is some 8 inch pipe, but the general mains are mostly 6 inches—that is the principal mains.

Q. Did Mr. Brown design the plant?

A. Part of it he did. He designed the additions.

Q. Who designed the other parts of it?

A. Mr. Patton.

Q. Who made the specifications for the pipe lines?

A. Mr. Patton made the first.

Q. You didn't do any of the kinds of work mentioned in the last two questions did you?

A. No sir.

Q. Where did you buy your pipe?

A. At Chattanooga principally and South Pittsburg.

Q. In what years?

A. It was bought in 1896, 1897, 1898 and 1899 I guess and possibly 1900, the last purchase.

Q. What did you pay for 12 inch pipe?

A. The last purchase I made was $13.00 at Chattanooga.

Q. What was your other purchases?

A. The other purchases were made mainly through the contractors and I don't recall the prices.

Q. What was the date of that $13.00 purchase?

A. I cannot fix the exact date.

Q. Who was it purchased from?

A. The Chattanooga Foundry and Pipe Works. I believe they called it the American Pipe and Foundry Company at that time.

Q. That $13.00 purchase was the lowest price you made?

A. Yes sir, $13.00 at Chattanooga, and $1.40 freight to Nashville.

Q. So that made it $14.40 to Nashville?

A. Yes sir, $14.40 to Nashville.

2313 Q. Now can't you give me the figures on some of the higher ones; you have given me the figures on the lowest purchase?

A. No sir, we bought some pipe at the mines for the equipment of coke ovens and water supply there, but I don't recall the price. It was higher than that though; probably $15.00 at Chattanooga.

Q. What was the market price of cast iron pipe in 1898?

A. The only data that I have shows the prices of purchases made from the American Pipe and Foundry Company in 1898 from $16.10 to $18.60. That is by car load lots.

Q. I want the market price?

A. I have known of large sales, large quantities as low as $13.00 at Chattanooga.

Q. In what year?

A. 1898.

Q. How do you know it?

A. I got it from the contractor, the man that bought it.

Q. Have you any personal knowledge of it?

A. Oh no sir I never saw a foot of the pipe?

Q. How much did you buy in that year for the penitentiary at $13.00?

A. Two cars I believe, or three. My purchase was in 1899, not in 1898, and possibly in 1900.

Q. Were these large sales at $13.00 of which you speak in 1898 or 1899?

A. 1898 I understand.

Q. But you don't pretend to know, do you?

A. Nothing more than from information from Mr. Gill, the contractor who bought it. He said it was bought in the Fall of 1898 and delivered in 1899 and 1900.

Q. Well now do you fix as the market price the $13.00 price or the $18.10 price?

2314 A. Well a reasonable conclusion from that would be say to allow $14.00 to $15.00 on large quantities and $16.00 to $18.50 on small quantities.

Q. That is those prices in Chattanooga?

A. In Chattanooga.

Q. How would it be here or at Nashville?

A. It would be $1.50 more here and $1.40 more at Nashville.

Q. Isn't it $1.60 more here?

A. $1.50 is the rate I had in those days; that is my recollection, and that is the rate I see deducted from these bills.

Q. Now adding on the freights, what do you say was the market price of cast iron pipe delivered here in 1898?

A. These prices of $16.10 and $18.60 was delivered here.

Q. What did you aflow the water company for iron pipe in 1898?

A. I made no estimate for 1898 for the water company.

Q. What did you allow them for 1901 and 1902?

A. Well I made no estimate except in 1901 I allowed them $18.50.

Q. Freight included?

A. Delivered here.

Q. Where did you get that estimate?

A. From the general market conditions in those times, the governing one being a purchase by the city of Nashville about that time of a lot of pipe at $18.40 at Nashville, which was equivalent to $18.50 here.

Q. Do you know the fact that in January and February 1901 cast iron pipe market went very low compared with what it was immediately before and immediately after that?

A. No my information is it was lower before that and began to advance early in 1901.

Q. What was it at the end of 1900?

2315 A. Oh probably $1.00 lower than in 1901.

Q. Do you make that statement on information or surmise, or personal knowledge?

A. I make it on surmise and comparison.

Q. Then you have no knowledge of the fact?

A. No sir I made no purchases.

Q. Have you any means of information as to the state of the market in 1901 except the Nashville purchase that you have referred to?

A. Yes sir there was a lot of purchases of $16.00 and $17.00 the Fall before and other purchases along in the early part of 1901.

Q. Who made those purchases?

A. Well various parties.

Q. Well I will ask you to name them?

A. I don't believe I have any of the data with me except a Nashville purchase in the spring of 1901 based at $17.00 at Chattanooga, Knoxville purchases, March and April at $22.00 and $23.00 at Knoxville, being car load purchases, from which I reason that it would be very easy to get a $5.00 reduction per ton on large purchases.

Q. Do the books show large purchases at $22.00 and $23.00?

A. At $22.00 and $23.00, and Mr. Kimball has testified that the market price at Knoxville was $22.60, I believe; anyhow from $22.00 to $23.00.

Q. Are you sure Mr. Kimball testified that?

A. I read it in a deposition of his, but not in this case I don't think.

Q. Not in this case?

A. No sir it was in another case; something about the 9th ward in which you were the counsel and asked him the question.

2316 Q. I will ask you to bring that into court when you come again?

A. Bring which?
Q. That statement of Mr. Kimball's which you refer to.
Q. You have seen that the books of the Knoxville Water Company show purchases at about $22.00 at that time, have you?
A. Yes sir I think I have.
Q. And you have heard that the Nashville purchase was made at $17.00?
A. No, it was equivalent to $18.50 at Knoxville.
Q. Now how did you hear that about the Nashville purchase?
A. I got it from the superintendent of the water works, Mr. John T. Ahern.
Q. Now having seen the cost on the books of the Knoxville Water Company, and hearing that statement from Mr. Ahern, you concluded——
A. The Nashville I understand was purchased on bids as all purchases are made.
Q. Ar-n't these at Knoxville all made on bids too?
A. I do not know; I don't think they are, but I don't know though.
Q. Did you inquire to know whether they were or not?
A. No sir.
Q. How do you know that the Nashville purchases were made on bids?
A. Because it is the law, a charter stipulation for everything over $50.00.
Q. That everything over $50.00 must be let to bidders?
A. Yes sir.
Q. But you made no inquiry to ascertain whether or not the contracts here were let under bid, did you?
A. They didn't seem to be of very much magnitude, these car load purchases.
Q. My question is whether or not you inquired to ascertain
2317 whether they let under bids?
A. I did not, and wouldn't have attached much importance to it if I had, because the quantities were not of sufficient importance.
Q. So you don't think the price paid by the Knoxville Water Company at that time is unreasonable and excessive, do you?
A. No, but I don't think that the prices are such as you would have to pay for a large lot of pipe.
Q. How can you explain the conduct of the Knoxville Water Company in purchasing pipe and paying more than it was worth?
A. They either were not diligent enough in securing the lowest price, or didn't give it sufficient attention, or didn't know where to get it.
Q. Have you found anything in these books or in your investigations of the affairs of the Knoxville Water Company to say that it was not diligent in the management of its business?
A. No I find the books and records indicate that it is exceedingly diligent; the only exception perhaps is in some of its purchases, it appears to have not been as close as it might have been.
Q. Upon the facts in your possession Mr. Nixon and which you

have stated, is there any stronger reason for concluding that the market price of pipe in 1901 was $22.00 than $18.00?

A. No sir I think not.

Q. You see $27.00 prices on the books here don't you?

A. Yes sir, and $22.60, &c.

Q. And you get the other information from hearsay don't you?

A. Yes sir, and writing.

Q. Have you any writing about it?

A. The superintendent of the water works at Nashville put his in writing.

Q. Mr. Nixon what is the reason you selected the lower
2318 rather than the higher prices?

A. Because it was a fairer price.

Q. Why was it fairer?

A. Because it was a purchase of a larger quantity through competition.

Q. That very fact would justify a small purchase at a higher price wouldn't it?

A. It might; there are several conditions which might have entered into it. The water company may have wanted a car load or two of pipe in a hurry, and might have preferred to pay a few dollars more to have obtained it, or obtained it from a nearer supply at a larger price. There are several conditions that might have entered into it.

Q. Is there any instance in your statement of prices or of quantities in which you have not charged the Knoxville Water Company with the lowest possible price or the lowest possible quantity?

A. In making up our statement we endeavored to use fair prices and reasonable quantities; we didn't skimp for extremely low prices or extremely small quantities, but endeavored to secure the correct and proper quantities and reasonable prices. Of course we used as low prices as our experience and information would warrant.

Q. Is there any instance in your statement where you have not held it to the duty of paying the lowest possible price, or using the lowest possible quantity?

A. I think not—that is, the lowest fair price and the lowest reasonable quantity—just as if I had been making the purchases or deciding on the quantities myself.

Q. Has it not been your fixed policy to minimize prices and reduce quantities as against the water company?

A. No not extremely so.

2319 Q. Well has it been at all so?

A. It has been my endeavor and policy to reduce the quantities and prices to fair prices and reasonable quantities.

Q. Has it not been your policy to reduce prices and quantities as low as possible?

A. Yes sir, in reasonable bounds.

Q. Has it not been your policy to reduce them as low as possible without regard to any other fact except lowness?

A. No sir, no indeed.

Q. Have you allowed it anywhere to exercise a reasonable discre-

tion in going above the lowest possible price of material, or in using the lowest possible quantity?

A. I have endeavored to adopt a basis that I would have followed if in charge of, or doing the work.

Q. Has it not been the prime purpose of yourself and Mr. Brown in this investigation to reduce the prices and quantities claimed by the Water Company?

A. No sir, no indeed, unless where we found they were very excessive, which have been very rare.

Q. Can you recall any instance in which you have approved the prices set by the expert witnesses or other witnesses of the city?

A. Yes sir I can go through the statement and set out a great many prices, I should say one-third of the prices and nine-tenths of the quantities in the items.

Q. Now upon the theory of probabilities, do you seriously insist that it is probable that the witnesses of the water company could be wrong as to two-thirds of the prices and right as to one-third, and that you and Mr. Brown could be right as to two-thirds of the prices and only wrong as to one-third?

Objected to by counsel for defendant as calling for a mere opinion of the witness.

Over-ruled.

2320 A. As I understand the matter, the witnesses for the company were computing at a different date from the one upon which we were figuring.

Q. Computing quantities at different dates?

A. They furnished very meager statements as to quantities, except Mr. Wheeler.

Q. You say they furnished very meager statements of quantity except in Mr. Wheeler's deposition. Where did you get your statements of quantities?

A. Mostly from Mr. Wheeler's deposition and from the plans and from some additional measurements.

Q. Now Mr. Nixon, how does it happen that so few changes in quantity were made by you?

A. Because we found the quantities given correct, or approximately so, and we didn't want to change a correct quantity.

Q. How much measurement did you personally do to ascertain whether the quantities were correct or not?

A. Not a great deal.

Q. Did you do any?

A. I saw some done by Prof. Brown.

Q. That was within the last few days, wasn't it?

A. It was within the last 40 or 50 days I guess; and then Mr. Getaz and Mr. Munding made some measurements and corroborated the quantities, so they said.

Q. The question of quantities is one that is determinable by practical test, is it not?

A. Not in this instance; too much of the material is under the ground and covered up for that.

Q. Well as a general rule, that is true isn't it?

A. No I should say the rule was the other way. A great many of these quantities you wouldn't have been able to have elucidated from the plans, but for some photographs that were taken during the progress of the work that showed the original ground lines and rock lines.

2321

Q. In regard to the prices, Mr. William Wheeler gives the prices for each item entering into construction for the year for which that construction was done, doesn't he?

A. Yes sir he makes such a statement.

Q. Do you assume anywhere to correct Mr. William Wheeler's estimate of prices for the year 1882?

A. Mr. Wheeler made no estimate of prices in the year 1882 that I have.

Q. For 1883 I mean?

A. Or for 1883 either.

Q. Well examine his deposition beginning on page 32 and running on there, and see if he doesn't state prices for everything in those years?

A. Yes sir he furnishes a lot of estimates.

Q. How did you get your information for prices at that time?

A. For what purpose?

Q. For the purpose of your deposition in this case?

A. For the purpose of original construction or cost of replacement?

Q. For the purposes of your deposition in this case—for general uses?

A. I arrived at my estimate of the cost of original construction by going through the old Loweree books and endeavoring to find how much money had gone into the plant—how much cash had paid for it. For the purposes of replacement, this property was included with the other and figured as of date March 31, 1901 as if new at that time in the replacement value, and for comparative value, we compared the life of each element of property and its expectancy, and reached a conclusion of its comparative value at that date in that way.

2322

Q. You didn't attempt to estimate prices of material, labor, &c. from 1883 to 1891 did you?

A. No not in the replacement cost.

Q. Well how did you get it?

A. We didn't need it.

Q. How did you get your estimate of original construction at $110,000.00?

A. As stated before I found that about that much money had been used in that construction.

Q. Now having pursued the process that you have indicated, do you undertake to say that the prices and quantities set by Mr. Wheeler in his statement for material, &c., from 1883 to 1891 are excessive?

A. I don't think that I paid much attention to his prices at those times, if they were estimated prices.

Q. Do you undertake to say now that they were excessive?

A. Where he shows the cost of the plant up to December 31, 1891, at $221,000 odd dollars against my estimate of $150,000.00 to $155,000.00, I certainly say that his estimates are excessive and unwarranted by the books.

Q. Leaving the books aside for a moment and referring to the specifications of quantity and price set by Mr. Wheeler in his deposition, have you undertaken, or do you undertake to say now that they are excessive?

Mr. PICKLE: What prices are you referring to Mr. Caldwell?

Mr. CALDWELL: I refer to prices of labor and material for the years from 1883 to 1891.

A. Well I will ask you to kindly indicate some of the details upon which you desire the information.

Q. Have you examined any of these prices that I refer to?

2323 A. Oh yes sir nearly all.

Q. Then ar-n't you able to say whether they are excessive?

A. Well I am able to say that many of them are and some are not. If you will indicate which items particularly you desire an answer on I will be glad to give it to you.

Q. How do you know that any statement of price for work or material from 1883 to 1891 is excessive?

A. From my experience in similar work and acquaintance with the conditions of this country at that time, and the investigation of these particular estimates in many instances, such as for instance the excavation of the reservoir at 20 cents a yard is excessive, because I found it was done at 10 cents.

Q. Are you positive it was done for 10 cents?

A. The evidence adduced in this case seems conclusive.

Q. What evidence?

A. The evidence of the man that did the work.

Q. What is his name?

A. Lawson Irwin, which is corroborated by the books.

Q. Now will you show me where Lawson Irwin said it was only 10 cents he received?

A. He told me that is what he got, and I think I saw it in his deposition.

Q. Then you are testifying from outside conversation with Lawson Irwin?

A. No sir I think it is in his deposition. If you will get the deposition I will point it out. (Witness examines deposition) I see here it was 12½ cents. That is right. I got mixed as to the 10,000 yards of excavation. I also find that I was mistaken as to the estimated price being 50 cents instead of 20 cents.

Q. Who made the estimate of 50 cents?

2324 A. Mr. Ludlow. Mr. Wheeler gave no details. He just lumped it.

Q. You have referred to your experience in these matters, Had you up to 1891 had any experience whatever in such matters?

A. Yes sir I had had some experience and information in such matters.

Q. How did you get it?

A. By doing work around mines and buildings, &c.

Q. Did you have occasion to find the cost of cast iron pipe before 1891?

A. No, I handled no cast iron pipe. I was talking I thought you referred to dirt work and such things. I thought you were asking about that.

Q. Well where was your dirt work done?

A. Around the iron ore mines.

Q. And where were the mines?

A. The mines I was interested in and was operating before that date were in Roane County, and I have had some excavation done around biuldings, &c. nearly all my life.

Q. That refers of course exclusively to earth excavation and possibly rock excavation?

A. Well we were referring to earth excavation in this instance.

Q. Well how about cast iron pipe?

A. I had no experience or familiarity with cast iron pipe before 1891 except in a general way.

Q. Reservoirs, Pumping Engines, Filter Plants, Standpipes, Meters Valves, &c.; had you any information about prior to 1891?

A. Not much; I don't think there were any filter plants in existence in this country at that time.

Q. Now if you correct Mr. William Wheeler's estimates of prices prior to 1891, upon what authority do you make such corrections?

2325 A. Upon the ground that his estimates of those prices are just like mine, and my being in this country, and familiar with the conditions, and to some extent the prices, I could ascertain some of those plain, simple things as well as he could. I support my position further from the books.

Q. Now leaving the books aside, isn't it a fact that you don't know now, and never did know anything about the prices of a large majority of the matters entering into water works construction and maintenance as they existed prior to 1891?

A. Of course not; I wasn't in that business, or paying very much attention to a great many of the elements, costs and quantities and similar things that entered into this construction at that time.

Q. Have you ever acquired any such information?

A. I think I have.

Q. How did you acquire it?

A. By application and investigation, just like you have learned the law.

Q. Now then if you have acquired it, I will ask you to state what your knowledge of prices of cast iron pipe prior to 1891 is, or what that price was according to your knowledge at present and point out directly say for the year 1890?

A. I find that the Knoxville Water Company were buying cast iron pipe in August and September 1882 at $35.40 a ton, an average of that price, and at $34.50 a ton in September and October, and in November and December at $33.80, and in November $34.85,

in 1885 at $26.40, later in the year at $26.16, and that they bought from the year 1882 to 1891 1668 tons at an average of $31.08, and I also found the prices on the books of the water company.

Q. You got this information from the books of the water company?

A. Yes sir and the books of the pipe works.

Q. Well the books of the pipe works have been ruled out
2326 of this case, so that the only information you are able to show me that you possess in regard to prices of pipe prior to 1891 is derived from the books of the Knoxville Water Company?

A. I would consider that the best source of information for the purposes of this case.

Q. Now do you accept that as correct?

A. Yes sir I accept those as the prices that were paid.

Q. Now at what point is it you decline to accept the prices set by the books, and explain how you accept the books down to a certain period and after that point you reject the book prices?

A. I would be much obliged if you would specify more closely what answer you desire of me?

Q. Well I will put it this way, do you accept the book prices of cast iron pipe from the time the books were opened in 1882 or 1883 down to the lowest pipe purchases that appear in this case?

A. For what purpose?

Q. For the prices of cast iron pipe?

A. Yes sir I accept them as the prices paid.

Q. Well, you didn't do it in the case of the Nashville purchase and the Knoxville purchase in the spring of 1901, did you?

A. No sir, as I explained, that would be a very different proposition.

Q. Then are there other instances in which you reject the book prices for cast iron pipe?

A. No, I have rejected no book prices.

Q. You don't allow the book prices in 1901, do you?

A. I have rejected these estimates made outside the books, made from hand books and from theories and other sources.

Q. Don't the books show the price of $22.00 for the year 1901?

A. Yes sir for one or two cars of pipe.

Q. Isn't it 50 cars instead of one or two?

A. No sir I didn't find it that way.

2327 Q. Well then am I justified in assuming that you have approved the book prices on the water company's books for all purchases of cast iron pipe, excepting the particular purchase you have mentioned of a few car loads in the spring of 1901?

A. For what purpose?

Q. My question is if those book prices are approved by you as being the correct market prices?

A. I should say generally so.

Q. Can you point out anywhere else that they are wrong?

A. No sir I hav-n't endeavored to discredit them in any particular.

Q. If Mr. William Wheeler's statement of the prices of cast iron

pipe in his analyses are in exact or appropriate correspondence with the prices shown on the books, then they would be in exact or approximate correspondence, as the case might be, with your judgment, wouldn't they?

A. They would; but the trouble in this instance however is that a great deal of the piping is not on the books, having come into the plant through outside contracts.

Q. How would you arrive at the cost of that part of it which is not on the books. You have accepted Mr. William Wheeler's statement on that point, hav-n't you?

A. Not altogether.

Q. Well how would you arrive at that cost?

A. For the purpose of ascertaining the overcharge or excess on that item, I have reduced the pipe to tons, and then adopted what I regarded as a fair price per ton, or an average fair price per ton, and then also passed on the charge for laying, instead of following Mr. Wheeler's method of the footage basis, and in making
2328 up statement of the cost of replacement of date March 31, 1901, I have ascertained the number of tons of pipe required, and fair price per ton, and computed same and added to this tonnage the accepted per centage for specials, and then added to the total of these two items the cost of laying pipe.

Q. Now before you could make an estimate of tonnage, you had to know the quantity of pipe, didn't you?

A. Yes sir.

Q. Where did you get that?

A. From Mr. Wheeler's estimate, and from Mr. Kimball's certificate of the quantity of pipe in existence on the date in question.

Q. Now how does the book cost of the pipe correspond with your results reached by the method you have just indicated?

A. There is no book cost shown.

Q. Do you undertake to say that there is any year covered by these books that the company did not do some pipe-laying on its own account?

A. There might have been, but it wasn't followed in taking the plant as a whole.

Q. Whom do you mean it was not followed by?

A. It was not followed by me.

Q. Why was it not followed by you?

A. Because it was insufficient and meager.

Q. It showed prices, didn't it?

A. It showed prices in a small way.

Q. Do you think that the occasional investigations of that subject which you made afford a better criterion for the cost of cast iron pipe than the limited amount of work shown on the company's books?

A. Decidedly so.

Q. What was the extent of your investigations that made it a safer plan?

2329 A. My investigations are related to a consideration of over six thousand tons of pipe purchased at one time, and the

laying of a large amount of pipe at one time comparatively, which cannot be fairly compared or contrasted with the little pipe-laying done by the company each year in its extensions as the water-takers demand a supply.

Q. Suppose the company had laid six thousand tons of pipe in one year and the price of it appeared on the books, would you have accepted that price?

A. I expect I would.

Q. Then why is it that the company's books are not as truthful to a small price as to a large one?

A. Truthful is not perhaps the proper term, but they are certainly not as accurate or as practical as when doing a large amount of work.

Q. You say your investigations are related to the purchase of six thousand tons of pipe. By whom and where was that purchase made?

A. I refer to the amount of pipe required to replace the pipe distribution system of the Knoxville Water Company on March 31, 1901.

Q. Well did you make any investigation to ascertain what cast iron pipe was worth then?

A. Oh yes sir.

Q. What investigations did you make?

A. All that were possible for me to make.

Q. Well what was it possible for you to make?

A. To examine the market reports, and iron prices, quotations, purchases and supply of pipe about that time.

Q. Now from those investigations, what conclusion did you reach as to the cost of cast iron pipe on March 31, 1901?

2330 A. $18.50 a ton at Knoxville.

Q. Now will you be good enough to name for me some of the particular sources of your information?

A. Through the Trade Papers.

Q. I want the names of those Trade Papers?

A. Well Trade Papers are not very good authority on that subject either. I will not refer to the Trade papers on pipe—particularly cast iron pipe quotations are not criterions of contract prices. They are like pig iron prices—very misleading. My investigations have been more as to the actual transactions.

Q. Well I will ask you to name the actual transactions then?

A. The basing transactions upon which I fixed this value was the purchase before referred to by the city of Nashville at about that time.

Q. Do you know of any other sale?

A. No I recall none right now that I remember, but I think I had some others.

Q. Then am I justified in understanding that you base your whole (witness interrupting) I am willing to base this valuation on the Nashville purchase as being near correct and in comparison with the water company's purchases in a small way.

Q. Now what was the date of that purchase?

A. It was in the spring of 1901.
Q. What time in the spring of 1901?
A. I cannot say.
Q. Was it before or after March 31st?
A. I don't know, but if it was after it was when the market was stronger, but my information is it was the spring of 1901 or early in 1901.

Q. Did you attempt to make any other investigations?
2331 A. Yes sir I investigated the Moble transaction as the largest sale of which I had heard.
Q. Did you make any others?
A. Perhaps some others that I can't recall just now.
Q. What was the extent of the purchases made by the Knoxville Water Company in 1901 of cast iron pipe?
A. I don't know; the books show various bills.
Q. Do you remember how much?
A. The bills generally show in car load quantities.
Q. Well how much as a total?
A. I don't think I totaled them.
Q. Pipe companies charge each car separately, by itself, don't they?
A. Oh no, not necessarily.
Q. Well suppose they sell one thousand car loads and send one at a time?
A. They would if they sent them that way. If they sent ten cars they might put them all on one bill. I notice this was done in the case of the Lonsdale purchases.
Q. Mr. Nixon if that Nashville purchase was made after March 31st, 1901, would it be as good a criterion for establishing value or cost of cast iron pipe at that time as a series of transactions covering the preceding twelve months?
A. That would depend upon the character of the transaction.
Q. Why would it depend upon the character of the transaction?
A. Because there is a difference between a small continuing business and a large transaction.
Q. I want to ask your best judgment as to the time of that Nashville transaction?

A. I can get such information, but I hav-n't got it with
2332 me. It was early in 1901.
Q. Did you examine the vouchers of the Knoxville Water Company to ascertain what it paid for cast iron pipe in 1900 and the first quarter of 1901?
A. Yes sir I had such vouchers as were obtainable.
Q. Well what did they show as to the prices of cast iron pipe at that time?
A. My recollection is they showed $22.60 the nearest to this date I could get.
Q. The nearest to what date?
A. The nearest to the date of March 31st 1901, $22.60 the price of pipe is the nearest to March 31st, 1901 I could find.

Q. Was that as close to March 31st 1901, or closer than the Nashville transaction?

A. Not knowing the date of the Nashville transaction, I cannot say.

Q. Well can't you remember the fact without regard to the exact date as to whether it was closer or not?

A. No sir not unless I knew the date, I couldn't, and as before stated I didn't regard those prices as conclusive as to the value, or the possibility of a purchase of six thousand tons of pipe as I did the Nashville purchase by competition.

Q. What was the total cost of the Nashville purchase?

A. The superintendent said they purchased $4,000.00 worth. I suppose that was the amount appropriated by the Board of Aldermen or Councilmen.

Q. Well that was $4,000.00?

A. Yes sir.

Q. I hand you invoice of United States Cast Iron Pipe and Foundry Company of Anniston, Alabama, #1295, showing sale of pipe to the Knoxville Water Company in September 1900
2333 of items aggregating in weight about 31,000 pounds; prices at $23.10 and $23.70. Do you consider that of any weight in connection with the prices of March 1901?

A. This invoice would be informing and persuasive but not conclusive without an explanation of the conditions and the time of the purchase and the quantity of the same, and various other considerations.

Q. Did you see that invoice before you made your statement of price?

A. I expect I did.

Q. Did you think it worth while to examine into the conditions?

A. At that time I wasn't examining the vouchers for that purpose.

Q. Was there any less obligation on you to make the examination later?

A. I preferred to accept Mr. Kimball's deposition on that point.

Q. On what point?

A. On the point of the value of pipe on the date at which I was working.

Q. I am speaking of the price of pipe at the date, and not the value of pipe?

A. The value or cost, or practical cost, was the thing I was using or endeavoring to ascertain.

Q. Will you explain to me why it was that you accepted that Nashville price and did not take into consideration the prices paid by this company?

A. As before stated I took the Nashville price because it was a purchase of a considerable quantity by competitive bids, and I considered it a much safer basis upon which to ascertain the cost as of that time than an occasional invoice covering an unexplained
2334 purchase by the water company.

Q. Now you say that you based your result somewhat at least upon the fact that bids were taken in that case. Do you know,

or do you simply assume that no bids were taken in the case of the water company?

A. I have not been informed as to the method used by the water company in its purchase, as these bills do not explain.

Q. Did you make any effort to secure that information?

A. Not as to these purchases, or the purchases covered by these bills.

Q. By what bills?

A. The bills you exhibit here.

Q. Well how many bills have been exhibited here?

A. I see a half a dozen.

Q. Have I presented more than one to you?

A. You have passed one of them over to me.

Q. In your investigations, did you discover that the Knoxville Water Company had made purchases beginning in 1900 and running down to say June 1901 amounting to upwards of $17,000.00 of cast iron pipe?

A. I did not.

Q. Why not?

A. The fact that these bills bear this date, are not conclusive that the purchases were made on these dates, or show the quantity of pipe purchased, or the extent of the same, or the conditions of shipment or delivery.

Q. Did you decline to examine them because of suspicions of their correctness?

A. I did not decline to examine them, but did not do so as I did not regard them as the best evidence.

Q. Did you regard the hearsay evidence of a gentleman connected with the water company at Nashville as better evidence than these?

2335 A. I would, without full explanation as to these transactions.

Q. Did you get a full explanation from the gentleman at Nashville?

A. As to the quantity, time of purchase, and size of pipe, I did.

Q. Would you have had any difficulty in getting a full explanation on these?

A. I might and might not.

Q. Did the question of getting an explanation or not getting one enter into your action as a cause of your failure to take these and your determination to take the other?

A. As previously stated, I regarded these scattering bills as covering smaller purchases, and perhaps not attended with the conditions that would make the Nashville purchase a more reliable one upon which to base cost at that time.

Q. Isn't it a fact that you simply made no effort to examine the books of the water company on this point?

A. The books of the water company show so little as to the construction of this plant that I did not, give them very much examination as to this point.

Q. You contradicted Mr. William Wheeler's estimates by the books of the company, didn't you?

A. In some instances.

Q. That would indicate that these books have a value where it suits your purpose and no value where they do not, wouldn't it?

A. They have a value where they show things, and no value where they do not.

Q. Isn't it a fact that you failed to examine either the books or the vouchers of the company on the question of prices of cast iron pipe for the purpose of your replacement statement?

A. That is a fact.

2336 Q. Well why was that a fact?

A. Because I had examined the sworn testimony of the superintendent of the company on that very point as brought out in an examination by Mr. Caldwell in another case, and it seemed to me a waste of time to examine these bills in order to corroborate his testimony.

Q. I hand you a batch of invoices from the United States Cast Iron Pipe and Foundry Company, showing that on the 4th of May 1900, the Knoxville Water Company had purchased and paid for $7,661.39 worth of cast iron pipe. Did you examine those vouchers?

A. Not with regard to the replacement cost, as they were too far away from my date of the 31st of March 1901, in the first place, and in the second place they are not accompanied with the contract of sale upon which these invoices are based.

Q. Was that letter from Nashville accompanied with the contract upon which that invoice was based?

A. I had no invoice from Nashville.

Q. (Question repeated to the witness.)

A. I had no invoice from Nashville.

Q. I will ask you to produce and file that letter as exhibit "1" to your deposition?

A. I will do so as it is very instructive in several particulars.

Q. Now what—now do I understand you to say that the purchase of over $7,000.00 worth of cast iron pipe within the fiscal year closing March 31st, 1901, would have no effect upon the cost of pipe?

A. These bills being dated nearly a year before the date upon which I was figuring, and unaccompanied with the contract of purchase upon which they are based, they would not be very valuable in ascertaining the cost as of the date desired.

2337 Q. Would you give them no consideration at all?

A. They would have some informing and persuasive consideration but would not be conclusive, not much more so than a newspaper quotation.

Q. What do you think of the feasibility of purchasing and putting down all in one day six thousand tons of cast iron pipe—more especially of purchasing them, as it is obvious that they couldn't be put down in one day?

A. It would be entirely feasible to purchase six thousand tons of pipe in one day.

Q. Do you think that such a thing has ever occurred in the history of water works construction?

A. I expect it has frequently occurred.

Q. Do you know of any case where it has occurred?

A. No, sir, nor any case where it has not occurred.

Q. Don't you know of a great many cases where it has not occurred?

A. I should think that if a man wanted to buy six thousand tons of pipe, and had his data and information at hand, he could close the trade as easily in a day as to spread it over several days.

Q. Kindly give the dates of those invoices separately to the stenographer?

A. The invoices embraced in the payments above referred to are as follows: (these being the gross amounts)

No.	909	Feb.	24,	1900	Order No.	18781	.....	$1936.74
"	915	"	28,	"	"	18781	.....	1035.42
"	917	M'ch	1,	"	"	18781	.....	449.95
"	902	"	5,	"	"	18782	.....	433.41
"	928	"	5,	"	"	18781	.....	940.86
"	994	"	6,	"	"	18782	.....	436.00
"	1001	"	7,	"	"	18782	.....	432.24

2338

No.	939	—,	8,	1900	Order No.	18788	.....	$255.04
"	938	M'ch	8,	"	"	18781	.....	306.21
"	1004	"	8,	"	"	18782	.....	437.83
"	1018	"	16,	"	"	18837	.....	520.21
"	1050	"	26,	"	"	18789 / 18782	.....	471.88

Q. I hand you an additional batch which I will ask you to give the stenographer in the same way?

A. The invoices are as follows:

Invoice No.	1914	Dated Sept.	15,	1900,	on order	19508.....	$60.40
"	1925	"	18,	"	"	19520.....	357.57
"	2051	Oct.	13,	"	"	19656.....	413.95
"	2328	Dec.	5,	"	"	35243.....	404.44
"	2494	Jan.	12,	1901,	"	35396.....	402.13
"	3349	June	26,	"	"	36001.....	452.40

Q. Now I will ask you to give the stenographer the prices per ton as shown on those several vouchers?

A. They are as follows:

Invoice No.	1018	at.....	$27.75	less freight.	
"	1004	"	27.25	"	"
"	938	"	27.25	"	"
"	939	"	27.25	and 2¼ cts.	less freight.
"	1001	"	27.25	less freight.	
"	994	"	27.25	"	"
"	928	"	27.25	"	"
"	992	"	27.25	"	"
"	917	"	27.25	"	"
"	915	"	27.25	"	"
"	909	"	27.25	"	"

Invoice No. 1050 at..... 27.25 and $45.00 for spec. less fr't.
" 1295 " ..... 23.10 " $23.70 less freight.
" 1914 " ..... 2¼ cts. a pound and 50 cts. an Hour.
" 2051 " ..... 23.10 and 2¼ cts. and 50 cts. h'r less fr't.

2339

Invoice No. 2328 at..... $23.10 and 2¼ cts. a pound less fr't.
" 2494 " ..... 26.00 " 23.10 and 2¼ cts. a pound less freight.
" 3349 " ..... 22.60 less freight.

Q. Now, Mr. Nixon, those several amounts aggregate over $9,000.00 don't they?

A. I didn't notice. The first batch aggregated $7,600.00 and something and I didn't compute the others.

Q. Now, those invoices begin at a date more than a year previous to March 31st, 1901, the bulk of them being early in 1900, and extend to a period about two months subsequent to March 31, 1901, don't they?

A. Yes, sir, they seem to run from February, 1900, to June 26th, 1901.

Q. What is the freight shown on each one—the freight per ton I mean—from Chattanooga to Knoxville?

A. The invoices that are marked "shipped from Chattanooga" are marked $1.60 per ton where the freight is marked. In some instances it is not marked, and the shipments from Anniston, Alabama, don't show the rate.

Q. Well, it was the Chattanooga ones I wanted. There is no price per ton shown on any of these invoices less than $22.00 is there?

A. $22.60 appears to the lowest price.

Q. Having seen these purchases, covering the period that they do, are you inclined to modify your estimate on cast iron pipe prices in your replacement cost?

A. I am not. The only point I would consider is the rate seems to be $1.60 instead of $1.50 that was current when I used to ship a great deal of pig iron to Knoxville, and cast iron pipe had the same rate as pig iron, but this cast iron pipe was all shipped by the United States Cast Iron Pipe and Foundry Company, and there is likely to be a rebate in that pipe.

2340 Q. How would the rebate affect the Knoxville Water Company?

A. It would not affect it on this price, as the water company wouldn't get it, but it would affect the rate to the town.

Q. So a rebate wouldn't affect the water company?

A. It would affect the rate on a large quantity of pipe.

Q. You still adhere to your former statement that the Nashville price is more controlling than all these?

A. I do. It is more convincing to me unless the contracts of purchase are furnished and other explanations given.

Q. Is the fact that the contracts of purchase are not furnished the principal reason why you do not consider them?

A. That is one of the reasons.
Q. Well, I asked is it the principal one?
A. No, I should want other information.
Q. Well, what other information?
A. An explanation of the conditions.
Q. What other information would you want?
A. A test of the pipe, the deliveries, the point of shipment and perhaps an analysis of the iron.
Q. Mr. Nixon would you be able to make those tests and analysis yourself?
A. Oh, no, I am not a chemist.
Q. Did you have those tests and analyses in regard to the Nashville shipment?
A. Oh, no.
Q. Then why is this, so far as the tests and analyses are concerned not as satisfactory as the Nashville shipment?
A. My investigations disclose that the Knoxville pipe system is very light and thin and will not with-stand a very heavy
2341 pressure, and the Nashville conditions are different; they have heavier pressure and stronger pipe.
Q. How much investigation of the Nashville system did you ever make; is it as extensive as your investigations of this one?
A. Oh, yes, sir, I have been to the water works at Nashville and to the reservoir, and have read their reports.
—. Did you ever see the cast iron pipe tested in Nashville?
A. No, sir.
Q. Did you ever see or hear of their analyses?
A. No, sir, I don't know anything about that.
Q. Isn't it a fact that you don't know anything accurately about the Nashville plant?
A. I know nothing more than I know about the Washington City water works plant, if I were to read a description of it by its superintendent.
Q. Don't you really think that the reasons you have given me for preferring the Nashville items rather than these are rather poor reasons?
A. Oh, no, sir.
Q. Have these reasons ever occurred to you prior to today?
A. Yes, sir, the small purchase reason had my consideration before.
Q. These other considerations, about the failure to exhibit the contract of purchase, the test of pipe and an analysis of it, have they ever occurred to you before today?
A. Yes, sir, the failure to have a full explanation of the purchase, delivery, &c., have had my consideration before.
Q. Well, didn't you know, Mr. Nixon, that the books of the water company and its vouchers were turned over to you and subject to your examination?
A. To some extent I did.
Q. Didn't you know it to the fullest possible extent?

A. I didn't know that I had any authority to call for those contracts.

2342 Q. For what contracts?

A. For the sale of this pipe.

Q. Were you ever advised to the contrary?

A. No, I don't know that I was. I understood my investigation was confined to the books of the water company and vouchers for certain years.

Q. Well, those years were from 1899 down to a period two or three years later, weren't they?

A. They were from 1902 down, but there were no vouchers back of 1899.

Q. Well, the vouchers I have shown you were all after 1899 and all prior to 1902, weren't they?

A. Yes, sir, but you speak about further vouchers.

Q. No, I am speaking about these I have exhibited to you?

A. I don't think I had any vouchers back of 1899.

Q. Can you give me any reason why you didn't examine these invoices that I have exhibited to you?

A. The reason I have heretofore given.

Q. And what is that?

A. That when I examined the vouchers it was not on that matter of making up cost of replacement of the plant, but to ascertain overcharges and excessive estimates and valuations, and when I came to make up the cost of replacement of the plant up to the 31st of March, 1901, while I had seen these invoices, I had also seen a sworn statement of the superintendent of the company in response to a question from Mr. Caldwell, stating his idea of the price of pipe at Knoxville at that time, and I considered it unnecessary to review the vouchers to confirm his statement, and from the fact without an explanation an elucidation of these transactions, I did not regard them as conclusive, or *or* very great assistance in fixing the value of six thousand tons of pipe at that time.

2343 Q. What do you say Mr. Kimball said in that sworn statement that this pipe was worth?

A. He said pipe was bringing at Knoxville March 31st, 1901, from $22.00 to $23.00, and the nearest to that date I could find an invoice was $22.60.

Q. Do I understand you to adopt the price of $18.00 because Mr. Kimball said it was bringing $22.00?

A. Oh, no, sir, I didn't adopt his price, as I regarded it as based on other conditions.

Q. I wish you would point out the logical connection between your price of $18.50 and Mr. Kimball's testimony of $22.00?

A. I did not attempt to make any logical connection, but referred to his testimony as being a profert of the pipe prices on the water company's books.

Q. Well, do you accept Mr. Kimball's statement of $22.00 as the price that the Knoxville Water Company was paying for pipe at that time?

A. I accepted it as his information of the prices that were charged

the water company on bills that had come into his hands of that date, or near that date.

Q. Now, suppose, Mr. Nixon, you had found in the office of the Knoxville Water Company invoices showing the purchase of six thousand tons of cast iron pipe, with analyses and tests of pipe corresponding exactly to what Mr. Kimball said; would you have accepted that as conclusive as against your Nashville matter?

A. That condition would have had much more weight with me.

Q. Now, do you know that condition did not exist at the time you adopted the Nashville prices?

A. I didn't know anything about it.

Q. And you did not inquire?

A. I don't think I did.

Q. And you didn't care to inquire?

A. I didn't think it was necessary.

2344 Q. Why didn't you think it was necessary?

A. In the first place because this information was probably not obtainable, and pipe shipped on small orders could not be as conclusive as the other instance I preferred to adopt.

Q. But I asked you if you knew whether or not the water company had purchased as much as your Nashville acquaintance had purchased?

A. No, I didn't know positively. These bills of various dates and shipments on different order numbers do not indicate that they represented a very large contract.

Q. Mr. Nixon, didn't you know that the books of the Knoxville Water Company showed prices higher than the one you adopted at the time you adopted it?

A. I knew these bills showed a higher price.

Q. Had you ever seen all these bills before?

A. I don't think I had ever seen more than a half dozen of the bills before.

Q. Now, you say in your first investigation you were not seeking to ascertain replacement value?

A. No, sir, I wasn't working on that then.

Q. Is that the reason why you did not then examine these invoices?

A. That is one of the reasons that I did not examine them with that view.

Q. Was that the controlling reason?

A. That was the principal reason.

Q. Now there came a time when you knew you were to make a replacement estimate; why didn't you then make an examination of them?

A. Because I had Mr. Kimball's statement and knew what the invoices showed, and didn't think it was necessary to come and look over the invoices in order to verify his statement.

2345 Q. You have given some testimony as to the matter of ditching for pipes. How much ditching did you ever do?

A. You mean myself; digging with a pick?

Q. Either yourself or your employés in any work?

1427

A. I don't think I ever did any. I never dug a ditch for a pipe.

Q. Then do you think you are qualified to testify as to the cost of ditching?

A. No, sir, I prefer to rely on Mr. Rourke, Mr. Dearing, and Mr. Ahern, superintendent of the Nashville Water Company, and the statements before Mr. Caldwell as Commissioner in the Chattanooga case, and some other information that I obtained.

Q. Then you have no personal knowledge on the subject?

A. No, sir, I never dug any ditch for a pipe in my life.

Q. In ordinary language, you don't know anything about it?

A. Except what I learned and ascertained.

Q. Did you ever build any reservoirs?

A. Yes, sir.

Q. You built that one at Nashville, you mean?

A. Yes, sir, I built two at Nashville and built some at Brushy Mountain.

Q. Who was your engineer; who did it for you?

A. Well, one of them at Nashville, I think was built without an engineer. I didn't build that; it was built by my predecessors. The one I built had no engineer except just a location or corner stakes placed where to put it.

Q. Who made those measurements?

A. Young Duffy, I think.

Q. Was he an engineer?

A. Yes, sir.

Q. What were the dimensions of the reservoir you built?

A. About a half million gallons capacity of the two, I think.

Q. I mean the measurements by feet?

2346 A. It seems to me like they were about fifty feet square and ten feet deep, or 50 by 60 feet and 10 feet deep. We cut them or blasted them out of solid rock.

Q. What was the slope of the sides?

A. There was no batter except on one side where the wall was exposed to the river, and that I think was from 1 to 4.

Q. Were you the sole prison commissioner in charge of that work?

A. Oh no, we had three commissioners. I looked after it though principally. I gave my more particular attention to it.

Q. How long did it take you to build it?

A. Oh I suppose three months.

Q. You built it with the convicts in the penitentiary?

A. Yes sir.

Q. It didn't require any skill labor did it?

A. I may have had one free stone mason and a man in charge.

Q. What was the inside finish of it?

A. A rock wall built straight up and down, but built with headers and filled with grout in the center so as to make it water tight.

Q. Well now you never did any water works construction except what you did in company with your two associates?

A. That is all the reservoir I built. There was one built up at the State Mines, but it was more under Mr. Hill's supervision; and I built another reservoir, a cheap reservoir, or a dam across a hollow.

Q. A mill dam?

A. No sir it was just a dam without a mill, for the storage of water.

Q. Did you have an engineer to help you in that?

A. Yes sir I had an engineer to measure the ground, run the levels and ascertain the height of the dam, which covered a good area, so as to furnish a required capacity.

Q. That penitentiary at Nashville is on the Cumberland
2347 river below Nashville about six miles, isn't it?

A. About ten miles by water and six miles by land.

Q. What is the population of Nashville?

A. I suppose something near 100,000 inhabitants according to the last census, it was over 80,000.

Q. I notice in your report for 1897 and 1898 referring to filters you state "These filters remove every vestige of contamination and discharge into a clear water basin from which this sparkling, clear, filtered water is pumped into the mains" &c. I presume you still endorse that statement do you?

A. Yes sir. The analysis of the chemist will show that 99.7/16 of the bacteria or animalcule was removed.

Q. Now Mr. Nixon what work have you done on the books of this company since you came here?

A. I have gone through the Loweree books and the Martine books, and General Wheeler's old book and his new book.

Q. Is that all?

A. That is all the books I believe I have examined except I made some examination the other day of the register and meter reports, &c., endeavoring to ascertain the receipts for water for a quarter, and for a year, so as to make calculations and comparison of the change of rates contemplated by the ordinance.

Q. What did you examine in all of these books?

A. I examined everything I could find.

Q. Did you examine every item in all the books?

A. Oh I don't suppose I did that. My examination was limited to the operating expenses for three years, during which range I made pretty close investigation. I also made rather an assiduous examination of the original books endeavoring to reach the original construction cost, and I also looked through Mr. Wheeler's two books pretty closely.

2348 Q. Now I wish to ask you in regard to the certain prices you have stated. Where and how did you get your prices on brick?

A. I got them mostly from the contractors here, Messrs. Getaz and Munding and some other contractors that I talked with, and from the bills of the water company showing the prices that they paid for brick, and also inquired from brick men here what brick sold for here at those times, and also the cost of the brick in walls of various buildings around here in Knoxville.

Q. Where did you get your quantities of brick?

A. We got them mostly from measurements and taking them off of the plans of the work.

Q. Who got them that way?

A. Prof. Brown took off the measurements, and I assisted him in making the calculations as to the cubical feet and yards, and as to the number of brick per foot contained therein, and in that way reaching the quantities, and comparing them with the quantities of Mr. Wheeler and Mr. Kimball's estimates.

Q. Did you personally and unaided make any measurements of lumber?

A. I never measured a foot of lumber.

Q. Did you personally and unaided make any measurements and estimates of earth excavations?

A. Only from the plans.

Q. Did you make any measurements of rock excavation?

A. Only from the plans.

Q. What did you personally do in regard to the plans?

A. I assisted Prof. Brown in computing the quantities from the plans. For instance he would say that a certain part of the construction was 7 feet high 4 feet wide and 20 feet long, and we calculated the cubical contents and then multiplied by the number of brick in a foot or yard and in that way reached the quantity.

2349 Q. Then you were aided by Prof. Brown in that work?

A. Oh yes sir.

Q. He did the technical and scientific part of the work didn't he?

A. You might call that the architect's work.

Q. Well that is what I mean; that is a kind of technical work?

A. Yes sir he did that.

Q. Did he do that same kind of work in connection with the rock?

A. Yes sir and earth.

Q. And concrete?

A. And concrete.

Q. Where did you get your labor prices?

A. On brick?

Q. On any kind of material or work?

A. From the various investigations and calculations; both from the books, and from estimates of other work and from the experience of the cost of such work of ourselves and others.

Q. What do you mean by "ourselves"?

A. Mr. Brown and I.

Q. Had you and Mr. Brown ever had any experience of that kind here at Knoxville?

A. No sir we never did that kind of work here. We relied on that from information which we ascertained here.

Q. Who put the prices on coal?

A. Coal?

Q. Yes sir?

A. I didn't see any price on coal.

Q. You didn't make any price on coal?

A. No sir.

Q. Who fixed the price on pipe?

A. Both of us together, and on laying and the various appurtenances, fixtures, &c.

Q. Who fixed the price on the engines?

A. We fixed them together as a result of our investigations.
Q. Did you have any knowledge of engines, Mr. Nixon?
A. Well yes some knowledge, and we submitted a specification of these engines to manufacturers, gentlemen who are familiar with them, and who have had experience in that line.
2350 Q. To whom did you submit that?
A. Stilwell Beirce, Smith, Vaile and company.
Q. Where is that firm?
A. At Dayton, Ohio.
Q. Who else?
A. To the Herron, Brady Pump and Foundry Company of Chattanooga, or to Mr. Brady of that concern, who is a pump man of many years experience.
Q. To anybody else?
A. I think Mr. Brown conferred with a representative of the Worthington Pump Company.
Q. Do you know that personally?
A. Well he told me he did.
Q. Well I object to what he told you unless you know it personally?
A. Well I didn't see the letter; and we had some other comparisons also from the Mobile Plant which is the newest and best plant of which I am familiar.
Q. What is the size of the Mobile plant?
A. It has two six million gallons Worthington engines.
Q. How do you know it has?
A. The report says so and the contractor said so.
Q. I suppose you know that is not evidence, don't you?
A. I don't know sir; I suppose it is a debateable question.
Q. You don't know anything about it personally?
A. Oh no sir I have never seen them.
Q. Who fixed the rates of contractors' profits to be allowed in this replacement account?
A. Why we agreed on that.
Q. Didn't you disagree at first?
A. Yes sir.
Q. What were your individual judgments at first concerning that?
A. Well I was pretty low on that; I didn't think they had any use for a contractor.
2351 Q. Were you low because of consistency or because of your convictions in the case?
A. From conviction and from my experience in handling that kind of work.
Q. So this is a higher estimate that was adopted?
A. No sir it is an equitable and compromised estimate.
Q. It is some lower than Mr. Brown at first thought it ought to be isn't it?
A. I guess it is if his views had prevailed on all subjects, although we didn't go far enough to get the results.
Q. So that it represents what neither of you think about it?

A. It represents what we do think about it. We were somewhat at variance at the start, but we soon got together.

Q. Well how did you come together? Did you become convinced that you were wrong and Mr. Brown become convinced that he was wrong?

A. Both ways. I conceded that I was wrong and he also conceded that my reasons were well founded in some instances and agreed with me, and in other instances I agreed with him, he having had experience and information in some lines that I had not had, and I having had experience and information in lines that he had not, and a comparison was made and a result reached that we agreed upon and adopted.

Q. As I understand it you rendered a verdict instead of a judgment, is that it?

A. Well a verdict and judgment is the same according to my judgment.

Adjourned until 9:00 o'clock Thursday morning, October 15th, 1903.

2352 THURSDAY MORNING, *October 15th*, 1903.

The further taking of depositions was resumed.

Continuation of cross-examination of W. M. NIXON:

Q. Mr. Nixon, did you bring into Court the letter from Nashville to which you referred?

A. Yes sir.

Q. I will ask you to copy the same into your deposition as a part thereof?

A. It is as follows:

"City of Nashville Water Works Department.

D. F. Barr, Water Tax Assessor.
T. H. Morton, Ass't Water Tax Assessor. John T. Ahearn, Sup't.
W. E. Danley, Sup't of Meters.

NASHVILLE, TENNESSEE, *June 6th*, 1903.

W. M. Nixon, Esq., Chattanooga, Tenn.

DEAR SIR: I regret exceedingly I delayed so long in answering your letters of inquiries of April 27th and May 6th respectively. But, in your letter of April 27th you said you may be in Nashville in a few days and call on me personally, and I have clung to the hope, from day to day that you would drop in, and hence the delay in not writing sooner.

I trust the delay has not caused you any inconvenience in the information desired, and will serve your purposes now, as well as at the time desired. Replying to yours of the 27th since I have been superintendent, we have only purchased water main twice; in the Spring of 1901 we bought $4000.00 worth, paying $18.40 per ton

f. o. b. Nash. and in April, the present year, we bought 300
2353 tons paying $29.40 per ton f. o. b. Nash. The size of our water mains is from 2″ to 36″ as follows: 2″—3371 ft. 3″—40282 ft.; 4″—35278 ft.; 6″—227909 ft.; 8″—25494 ft.; 12″—34682 ft.; 16″—2400 ft.; 18″—5588 ft.; 24″—11272 ft.; 36″—34233 ft., making a total of 79.64/100 miles. We use the Standard Water main, and the weight per foot is as follows:—3″—15 lbs.; 4″—22 lbs.; 6″—33 lbs. 8″—42 lbs.; 12″—75 lbs.; 16″—130 lbs.; 24″—240 lbs.

The largest main I have laid since I have been Sup't is 6″. We dig our trenches three feet deep, about 2 feet wide. In laying said main in solid rock, it costs 37¢ per lineal foot, and in nothing but clay soil, I have laid the same size pipe 6c. per lineal foot, including lead, labor, and restoring street to original condition. We pay our labor $1.25 per day of nine hours.

There is no records of the cost of laying the large sizes of water main, for in former times, the laying of all water main was let out by contract, and I may add, was laid much cheaper than the city could do it, as the contractor had the right to pay his labor at any price he could hire them, and work them as many hours per day as he could, whereas under the City charter, the Board of Public Works must pay all laborers $1.25 per day of nine hours.

The salaries of the different employés is as follows:—Sup't $2000.00 per year; we employ 6 engineers at pump sta. chief engineer $110.00 per month, other five engineers $100.00 per month; This department does not employ a civil engineer, employed by the city at large, does any work we may require, which is very little.

We employ a draftsman to make a record of our service pipes, water mains &c. and pay him $60.00 per month. One Tax Assessor $100.00 per month; one assistant water tax assessor, $1000.00 per year, one office clerk and meter reader $75.00 per month. We don't do any collecting; all the revenue is paid to City Treas.

One meter inspector $75.00 per month, one plumber in Meter Department $75.00 per month, two helpers in meter department
$35.00 per month each. One foreman of water mains $67.50
2354 per month, five laborers in water main department $35.00 per month; three watchmen employed at reservoir $45.00 per month each.

I think this about covers the information requested in your letters. But if I have omitted any, or not made it as clear as you wish, don't hesitate to call on me, as it will afford me much pleasure to comply with your request, and only regret I delayed so long in giving you the information desired.

Very truly yours, JNO. T. AHEARN, *Sup't.*"

Q. I see that this letter states that the purchase fixing price of $18.40 for pipe in Nashville says that that purchase was made in the spring of 1901. Have you any more definite information so you can indicate to me at what time in the spring of 1901 it was bought?

A. No sir not at present. I could obtain it if it is material, by telephoning over there I suppose.

Q. Do you allow $18.40 in your replacement estimate as the cost of pipe per ton?

A. I allowed $18.50.

Q. Will you be good enough to take the batch of vouchers or invoices which I hand you now and verify them to the stenographer by calling off the invoice numbers, quantity of pipe shown by each one of them to have been purchased, the cost per ton, the date of the invoice and the amount of the purchase in money?

A. They are as follows:

Invoice #1156, dated April 24. 1900 on order #18782, 51070 pounds pipe at $27.50, $695.83, less freight.

Invoice #1124, dated April 18, 1900, on order #18782, 3120 pounds at $27.25, $410.39, less freight.

Invoice #1088, dated April 7, 1900, on orders #18782,
2355 and #18915, 30335 pounds at $27.25 and 1107 pounds at $45.00, $438.22, less freight.

Invoice #1116 dated April 14, 1900, on order #18782, 30565 pounds pipe at $27.25, $416.45, less freight.

Invoice #1252 May 11, 1900 on order #19056, 620 pounds at 2¼ cents, $13.95.

Invoice #1309, May 28, 1900, on order #19056, 105 pounds at $45.00, $2.36 less freight.

Invoice #1231 May 7, 1900 on order #19026, 1345 pounds at 2¼ cents, $30.26.

Invoice #1274 May 19, 1900, on order #19066, 17168 pounds at $26.00, 16476 pounds at $28.00, 288 pounds at $45.00, $460.32, less freight.

Invoice #1457, June 27, 1900 on order #19196, 37634 pounds at $26.00 and 4889 pounds at 2¼ cents, $599.24 less freight.

Invoice #1366, June 8, 1900 on order #19145, 38021 pounds at $26.00, $494.27, less freight.

Invoice #1584, July 17, 1900, on order #19246, 30305 pounds at $25.60 and 3820 pounds specials at 2¼ cents, $403.75 less freight.

Invoice #1728 August 13, 1900 on orders #19349 and 19390, 5759 pounds pipe at $26.00 and 25145 pounds at $23.10 and 1451 pounds specials at 2½ cents, $401.57 less freight.

Invoice #1656, August 1st, 1900 order #19255, 34155 pounds pipe at $26.00 and 1932 pounds specials at 2¼ cents, $487.49 less freight.

Invoice #1827, August 28, 1900, order #19465, 130 pounds specials at 2¼ cents, $2.93.

Invoice #1826 August 29, 1900, order #19386, 68335 pounds at $22.70 and 1203 pounds specials at 2¼ cents, $802.67 less freight.

2356 Invoice #1830, August 30, 1900, on order #19386, 33700 pounds pipe at $22.70, $382.50, less freight.

Invoice #1671, August 3, 1900, on order #19255, 34145 pounds pipe at $26.00, $443.89, less freight.

Invoice #2902, April 5, 1901, on order #35673, 31281 pounds of pipe at $22.60 and 5629 pounds specials at 2¼ cents, $480.13, less freight.

Invoice #2958, April 15, 1901, on order #35740, 31150 pounds pipe at $22.60, $352.00 less freight,

Invoice #2987, April 23, 1901, orders #35740-35766, 38358 pounds pipe at $22.60 and 2719 pounds specials at 2¼ cents, pattern work $1.25, $495.88 less freight.

Invoice #3036, April 30, 1901 on order #35796, 1780 pounds specials at 2¼ cents, $40.77, less freight.

Invoice #2945, April 11, 1901, order #35696, 795 pounds specials, $50.50, less freight.

Invoice #3151, May 23, 1901, order #35835, 15279 pounds pipe at $25.00, 17570 pounds at $22.60, $389.53 less freight.

Invoice #3143, May 21, 1901, on order #35835, 38252 pounds pipe at $22.60 and 3377 pounds specials at 2¼ cents, $508.23, less freight.

Invoice #3179, May 29, 1901, order #35835, 34115 pounds pipe at $22.60, $385.50, less freight.

Invoice #3349 June 26, 1901, on order #36001, 40035 pounds at $22.60, $452.40, less freight.

Invoice #321, August 9, 1901 on order #36128, 34899 pounds at $22.60, $394.35, less freight.

Invoice #3718, August 16, 1901, order #36051, 39773 pounds at $22.60, $449.43, less freight.

Invoice #3720, August 17, 1901, order #36108, 40068 pounds at $22.60, $452.77, less freight.

2357 Invoice #3888, September 18, 1901, on order #36154 43463 pounds at $25.00, $543.29, less freight.

Invoice #3557, Sept. 12, 1901, order #36193, 60490 pounds at $22.40, $677.49, less freight.

Invoice #3849, Sept. 11, 1901, order #36193, 86965 pounds at $22.40, $974.01, less freight.

Invoice #3841, Sept. 10, 1901, on order #36193, 604698 pounds at $22.40, $677.24, less freight.

Invoice #3836, Sept. 9, 1901, on order #36193, 90900 pounds at $22.40, $1018.08 less freight.

Invoice #3830, Sept. 7, 1901, order #36193, 30290 pounds at $22.40, $339.25, less freight.

Invoice #4008, Oct. 10, 1901, on order #36296, 31340 pounds at $23.35, $365.89, less freight.

Invoice #4084, Oct. 24, 1901, on order #36414, 30455 pounds at $24.10, $366.98, less freight.

Invoice #4102, Oct. 29, 1901, on order #36362, 39586 pounds at $24.10, $477.01, less freight.

Q. These invoices are all properly receipted as paid by the Knoxville Water Company, are they not?

A. They appear to be. They were paid at Boston.

Q. The vouchers or invoices presented you yesterday also were properly receipted as paid by the Knoxville Water Company?

A. That is my recollection that they indicated payment at Boston.

Q. How do you know they were paid in Boston?

A. Because they have the Treasurer's voucher number on them, and also the pay date, and the bills are marked, "mailed to E. W. Boston."

Q. Is it not a fact that invoice #2902 is dated April the 5th, 1901, and shows the price per ton of pipe at $22.60, and the
2358 total amount paid $480.13?

A. Yes sir, and in addition 5629 pounds specials at 2¼ cents.

Q. Is it not also a fact that invoice #2958 is dated April 15, 1901 and shows the price at $22.60 a ton and the total payment of $352.00?

A. Yes sir.

Q. Is not invoice #2987 dated April 23rd, 1901, shows the price per ton at $22.60, and the total amount paid $495.88?

A. Yes sir, with the addition of 2719 pounds specials at 2¼ cents a pound and pattern work $1.25. I would add that these bills do not show the date of purchase, but that they were shipped on three different orders.

Q. How much do those three invoices aggregate in tonnage?

A. 50 89/100 tons of pipe and 6848 pounds of specials.

Q. Have you any data or information as to the prices of pipe nearer to the 31st of March 1901, than this invoice of April 5, 1901?

A. No sir, but that is not necessarily very near that date, as the purchase might have been made a long time before. Pipe and iron and steel were all declining through the year before.

Q. Do you know when the purchase was made?

A. No sir there is nothing to indicate it on the bill.

Q. Do you know when the purchase in Nashville was made?

A. In the spring of 1901, is my information, or early in 1901. Let me see the letter how it reads. "In the spring of 1901."

Q. Ar-n't these invoices of April the 5th, April the 15th and April the 23rd, 1901 the nearest sales to the date you fix in the case that you see anywhere, or rather the nearest payments?

A. These invoices are not necessarily evidence of sales near
2359 that date, but they are billed to ship near that date. The date of payment I hav-n't examined.

Q. Why is it when I ask you these questions you argue them against me before answering them?

A. Because I want to explain the answer.

Q. Well have you examined whether or not they are the nearest payments of pipe to the date of March 31, 1901 that you have found?

A. I hav-n't examined or endeavored to secure the date of payment of any pipe close to that date.

Q. I will ask you for the third time if these are the nearest payments to that date which you have seen?

A. These bills appear to have been paid on June 26, 1901, which is within nearly 90 days of March the 31st, 1901.

Q. Now I will ask you for the fourth time if they are the closest payments to the date of March 31st, 1901?

A. They are as they are the only payments I have seen any evidence of.

Q. Can you state the aggregate amount of pipe purchased as shown by these vouchers I handed you this morning?

A. Yes sir, by adding them up.

Q. Can you approximate it without adding them?

A. If you will allow me to look through them.

Q. I have had them added up, and they amount to $16,449.43. I don't care for the exact figures, and this addition has been made quickly and it may be to some extent incorrect.

(Witness here hastily looks over the vouchers, saying:)

A. Well I am satisfied they amount to over $16,000.00 without adding them.

Q. This batch extends from the summer of 1900 to the Fall of 1901, doesn't it?

A. They appear to as I recall.

2360 Q. Why do you say "they appear to?"

A. Well as they were not in order, I didn't observe the dates very closely as I went on.

Q. Well I will hand them to you and ask you to state whether they do or not?

A. These invoices run from April 7th, 1900, to August 30th, 1900, and from April 5th, 1901, to October 29, 1901.

Q. Now having seen these invoices and vouchers covering a period for approximately a year preceding and approximately a year following March 31, 1901, and one of them being dated April 5th, 1901, and having read and adopted Mr. Kimball's deposition to the effect that this company was paying $22.00 and more for cast iron pipe March 31, 1901, do you still adhere to the conclusion that the market price to the Knoxville Water Company on March 31, 1901, was $18.50?

A. I still adhere to the conclusion that it was entirely possible and practical to have purchased the quantity of pipe necessary to replace the Knoxville system of over six thousand tons at the price of $18.50 delivered at Knoxville, based on the conditions that existed during those times, the price of pig iron during the latter part of the previous year having declined as much as $8.00 per ton, and the price of #4 pig iron from which the most of cast iron pipe is made was selling on April 1st, 1900 at Birmingham from $10.25 to $10.50 which supports my conclusion.

Q. Don't the amounts shown by the vouchers submitted to you yesterday, sometimes called invoices in this deposition, and the amounts of invoices and vouchers submitted to you today, aggregate about $27,000.00?

A. They do.

2361 Q. Do you infer that the orders were made in car-load lots or in small amounts in anyway, and that there was no purchase in that $27,000.00 worth of pipe that by itself aggregated $4,000.00?

A. Without specific information I am unable to say from the vouchers the amount or extent of any one purchase, but the invoices show that these shipments were made on some 12 or 15 different orders, which would indicate as many different purchases. There may however have been purchases to the extent of $4,000.00 or more in this aggregate amount, but even a purchase of that magnitude, without an explanation as to the time and conditions and specifications, would not be conclusive as against my conclusion as to the value or possibility of purchasing six thousand tons of pipe on March 31st, 1901 at $18.50 delivered at Knoxville.

Q. Who purchased pipe on the 31st of March 1901, at $18.50 delivered at Knoxville or anywhere else?

A. I am not able to say. I am not aware that any purchase was made on that date.

Q. When did cast iron pipe reach its lowest price in 1901?

A. About October it seems.

Q. 1901?

A. No, about October 1900.

Q. I say what time in 1901 was it at its lowest price?

A. Well in the early part of 1901. It advanced during 1901.

Q. Now Mr. Nixon you said in your answer a moment ago that you would need time, conditions and specifications. I will as you if you required any time, conditions or specifications in this Nashville letter?

A. No, I was familiar with the general conditions of the Nashville purchase, or the conditions that would surround a purchase by the city of Nashville, in that it would be open, notorious and
2362 public, and submitted to competitive bidding, the amount of money first being appropriated and published, the charter limitations of Nashville requiring such purchases to be made on competitive bids, and the condition of the elevation and pressure at Nashville requiring strong, standard pipe, was also known to me.

Q. Were you more familiar with conditions at Nashville than you are now with conditions at Knoxville, after six months of assiduous examination of the books and property of this company?

A. No sir I think not.

Q. Well then why do you require time, conditions and specifications here when you did not require them at Nashville?

A. Because I haven't that information as covering the invoices you have exhibited, but such information as to Nashville would come to me in a general way, as I have explained in a previous question.

Q. Don't you know that you are more familiar with conditions here than you are at Nashville at the present time?

A. I am; I am more familiar with the details here.

Q. Then I repeat my question; why do you require information about matters here that you did not require or possess at Nashville?

A. Because I would have to have that to make a correct comparison.

Q. Well could you make a correct comparison by having adequate information about Nashville and inadequate information here?

A. No, that question hasn't been raised heretofore.

Q. Suppose that on the 31st of March 1901, cast iron pipe had been at $1.00 a ton. Would you think it fair to the Knoxville Water Company, and within the spirit of this investigation to make a replacement estimate allowing it for the pipe it had put into the ground only $1.00 per ton?

A. If $1.00 a ton was the value of pipe at that time, I
2363 should certainly think it proper to compute the pipe at that price, that being the value and the pipe being obtainable at $1.00 a ton. The point I make in this comparison is a distinction between purchases and shipment of pipe. If shipments should govern the purchase of the 14 thousand tons of the Mobile pipe at $13.00 a ton, it should be applicable in this case, but it was purchased in 1898 and shipped in 1899 and 1900.

Q. Suppose that on the 31st day of March the pipe had been $1.00 a ton, that on the 30th of March at had been at $25.00 a ton, and on the 1st of April it had been at $25.00 a ton. Would the $1.00 a ton be a fair and reasonable allowance to the Knoxville Water Company?

A. I don't think so under such conditions as those you detail, as they are extreme and unreasonable.

Q. That is very true. Now I ask you if the pipe had been on the 30th of March, $22.00 a ton and on the 31st of March at $10.00 a ton and on the 1st of April at $25.00 a ton again, what would you allow the Water Company?

A. If I could have bought the pipe at $10.00 per ton I would have figured on that value.

Q. You think then it would be fair to the water company and within your understanding as an expert witness of the spirit and principles of this investigation to deduct 50% of the price under the conditions indicated in my last question?

Mr. PICKLE: I submit he is a-king the witness about a question of law and not of fact. The question whether or not replacement cost is on a proper basis is a question of law.

COMMISSIONER: I don't think so. The witness qualified as an expert, and the expert is to put a fair and reasonable value upon the property; that is what he qualified to do, and he has a right
2364 to test him thoroughly on that point.

A. Well that depends upon circumstances and a fuller explanation of the conditions indicated. The reasonable, practical value or price obtainable would, in my judgment, be the true basis upon which to base the cost of replacement of the plant of this company on the date stated.

Q. This investigation is intended, is it not, to determine the fair and reasonable value of this water plant?

A. I so understand.

Q. Now suppose that on the 31st of March 1901 the Knoxville Water Company had had in the ground as a part of its plant, pipe that cost $200,000.00 and that on that date that pipe was worth according to current prices, $100,000.00; which would you put in

your replacement estimate, the $200,000.00, making if you choose allowance for depreciation, or the $100,000.00?

A. If I could replace the $200,000.00 of the existing pipe which had had more or less age and cost $200,000.00, with new pipe at a cost of $100,000.00, I should have certainly used the $100,000.00 basis.

Q. Now does that indicate your judgment and opinion of the proper and just method of arriving at a reasonable valuation of this plant?

A. It does; the true test being reasonable cost of replacement on any element of the plant now at the time fixed.

Q. Is the method indicated by you in your last answer the best and fairest way of arriving at the valuation of this plant?

A. It is the fairest way of securing the cost of replacement of the plant.

Q. My question is, is it the fairest and best way to arrive at a reasonable valuation of the plant?

A. The best way to reach a reasonable valuation would
2365 be a comparison of the plant with its cost of replacement on a given date, in my opinion.

Q. Well you don't meet my question squarely. I asked you if this method is the best way to arrive at a reasonable valuation of the plant?

A. The method I indicated I consider the most practical and reasonable.

Q. Then you consider replacement cost as the determining consideration in reaching the valuation of a water plant?

A. Yes sir I consider replacement cost superior to original cost as a basis.

Q. Do you consider it as the controlling fact in determining the value of a water plant?

A. Not completely controlling, but largely controlling.

Q. In making this replacement estimate have you assigned to 24 hours composing the date of March 31st 1901?

A. No sir that would be unreasonable.

Q. How far before and how far after that date have you extended your view in making your replacement estimate?

A. I have been elastic in that regard, as the Nashville pipe matter indicates, covering the spring of 1901.

Q. Did you extend your view beyond the spring of 1901?

A. No sir I didn't get out of the Spring.

Q. Is there anything in the season of the year that affects prices of cast iron pipe?

A. Not usually.

Q. Having admitted Mr. Nixon that you did not confine yourself to the exact date of March 31, 1901, you necessarily admit, do you not that there are conditions and considerations affecting the price of cast iron pipe at times before or after, or both, that ought to be considered in reaching your determination?

2366 A. Oh yes sir there are a great many conditions that enter into the value and prices of cast iron pipe. I have seen cast iron pipe sell at the same price and pig iron, and I have seen it sell

higher. Pipe men buy their pig iron in quantities ahead sometimes—generally this is a fact.

Q. Mr. Nixon if within three or four months before the 31st of March 1901, the Knoxville Water Company had made orders for large quantities of pipe at a price considerably in excess of $18.50, assuming the price on the 31st of March 1901 to have been $18.50, would you consider it fair to the company to make a replacement estimate of $18.50?

A. Yes sir, I would, as a large price at a former date before the time of market, was speculation on the part of the purchaser, a bad trade should not be protected in making up the cost of replacement, as in this replacement estimate, it was not necessary to use this pipe at higher prices than it could have been obtained.

Q. Suppose the purchase was made in good faith and for use, would your last line of reasoning apply to it?

A. I am unable to see that it would have had any connection with the duty I have undertaken.

Q. Suppose that the Knoxville Water Company had elected to pay a slightly higher price for pipe than your price of $18.50, because it preferred the kind of pipe it was buying, and was willing in the conduct of its business to pay a slightly higher price, do you think that in making your replacement estimate that you should charge it with the lowest possible price, or that you should allow it some discretion in the management of its own business?

A. In making up a fair, reasonable and practical cost of replacement of the plant, I should use the prices of pipe that I could buy it at if it conformed to the required specifications, without
2367 regard to any purchases or transactions of the Knoxville Water Company in the conduct of their business.

Q. In other words you would allow it no discretion, but would hold it to the lowest price in all cases?

A. In other words I would not mix up with its transactions in making up cost of replacement of its plant.

Q. You would pay no attention to what it had paid, and would not consider whether it had paid in good faith or bad faith?

A. Oh I don't think the "faith" of the transaction would cut much figure.

Q. And you wouldn't consider it necessary for it to have made the payments it had paid or not?

A. Well I don't think that position has any bearing either in this comparison.

Q. Is it not impossible to construct a plant like the Knoxville Water plant and get in every instance and for every item of it the lowest market price that prevailed during the period of its construction-maintenance?

A. That depends upon conditions. There would be a difference between the construction of an entirely new plant and the construction of a plant at piece-meals and it is maintained as to comparative costs, some being higher and some lower.

Q. Then doesn't it follow that a replacement at the lowest possible price necessarily involves an injustice to the company?

A. No I don't think so, as a comparison with reasonable, prac-

tical price that the plant could be replaced for allowing all margins and charges for supervision, &c., should govern.

Q. If you should conclude this morning that you wanted to build a plant the size of the Knoxville Water Company's plant, would you be able to sit down today and make your plans and specifications and send your orders in before night?

2368 A. No indeed.

Q. Nor you wouldn't be able to build the plant today either, would you?

A. Certainly not.

Q. Suppose you wanted to build the plant; what day in the future would you look forward to as being the time when you could send in your order for the entire equipments, engines, pipes, valves and everything else?

A. If it was necessary, I could start today and have all the materials bought in 60 days; have all the plans and specifications made, materials purchased and probably a good deal of the work done in 60 days.

Q. Do you think you could get a pumping engine, such as this plant would require, delivered inside of six months?

A. I think so, and I could give my reasons, if necessary.

Q. What I mean to ask you of course is whether or not preparation before hand is necessary in doing such a thing as you contemplate in replacing this water plant?

A. Why of course some time would be necessary, more or less as the exigencies of the conditions demanded.

Q. I wish you to state in detail so that the stenographer may put it down what actual measurements of the physical properties of this plant you made by yourself without the assistance of anyone?

A. None at all that I recall, unless it was stepping around the reservoir.

Q. What statement of quantities have you made in your deposition upon facts ascertained by yourself unaided?

A. None whatever that I recall.

Q. You have never before, before you undertook this work, examined the physical properties making up a water plant, for the purpose of measuring, analyzing and valuing them, had you?

2369 A. No sir.

Q. And is it not a fact Mr. Nixon that you were not qualified to do that work by yourself unaided?

A. Yes sir it is a fact that I required assistance in technical lines, and preferred to have it; I would rather have the assistance of carpenters for carpenter work and others on these calculations in details.

Q. You get your carpenter work from Mr. Getaz and Mr. Hunding?

A. Yes sir.

Q. And you take your brick and ditching work from Rourke? and others?

A. I take my brick valuations from the company's purchases and the other purchases in the city at the time, and the cost of laying

from the contractors, mainly from Messrs. Munding and Getaz, but also from some other brick contractors and brick manufacturers, coupled with my experience and information on this line of work. The quantities were mainly obtained from the estimates of Mr. William Wheeler and the plans of the water company, with some verification by Messrs. Munding and Getaz, particularly as to lumber and carpenter work and to some extent the brick work, but as to the brick work mainly, by calculations of the cubical contents of the measurements. We did not pursue the same method of calculating brick as that pursued by Messrs. Getaz and Munding, they having used the 21 brick, or brick contractor's method without allowance for openings and corners, while we figured the actual cubical contents at 17 brick to the foot.

Q. Why didn't you measure and value the wood work yourself?

A. Because I preferred to have practical men do so, those who were familiar with that kind of work and the prices and conditions prevalent at Knoxville at the time the work was done.

Q. Why didn't you measure and value the brick work yourself?

A. For the same reason last above given.

Q. Why didn't you measure and value the ditching work yourself?

2370 A. Because I considered the judgment and experience of Messrs. Rourke and Deering, who are familiar with the conditions at Knoxville, the character of the soil, and prices of labor &c. as more accurate than my valuation would have been.

Q. The same thing is true of all the other kinds of work and materials, isn't it?

A. Yes sir, in the main.

Q. That being true, Mr. Nixon, don't you deprive your own statements of all probative force in this case?

A. I don't know, and don't care. I prefer an aggregate of practical investigation to an estimated value of any work.

Q. You admit then that the testimony of these other witnesses who have estimated and valued the physical elements of this plant, are of more effect and of more weight in the particular matters as to which they have testified, than your own opinion?

A. Certainly, I would prefer statements of practical men, familiar with the conditions and experienced in the actual work upon which they are figuring, than any comparative estimate of myself or any one else reaching his conclusions in that way.

Q. Then, doesn't it follow, that you as an expert witness are approving and confirming testimony in regard to matters as to which you are personally not qualified to testify?

A. In the first place, I don't call myself an expert in all things, and in the second place, it is a matter of indifference to me as to the force of my evidence as to the effect of how I fortify myself, but I am still convinced that it is safer to rely upon the practical experience of practical men than to use estimates, or book costs.

Q. If you could not have made any of these estimates yourself, why do you undertake to approve them?

A. Because I have had some experience in that line, and am able to judge whether they are about correct or not.

Q. That is, without having been able to testify as to any
2371 one line of facts, you think that you are competent to approve or disprove and to know about the aggregate on these lines?

A. Yes sir, after an investigation and comparison of these estimates, I am able to decide approximately whether they are excessive or otherwise.

Q. Did you ask that Professor Brown be brought here to assist you in the analysis and value of the physical properties?

A. I don't recall that I requested it, but perhaps when it was suggested, I approved it, thinking it was the proper thing to do, that he would be of very great assistance, as he could do a great deal of the work that I couldn't.

Q. You couldn't have made this replacement statement without his help, could you?

A. Yes sir, I could have made it, but not as accurately or satisfactory to myself, as I could with his assistance.

Q. Who did actually make it out?

A. We made it up together.

Q. What part of it did you make up personally?

A. I made up most all of it—that is, I collated nearly the entire information, except securing the quantities from the plans and some prices. There was a lot of the prices that Prof. Brown also obtained.

Q. Don't you admit that it was necessary for you to have the aid of Professor Brown, or of a scientific man before you were willing to present a replacement estimate, and testify to it in this case?

A. I admit that it was better to have him as more accurate details could be covered, but it was not absolutely necessary.

Q. On the 13th of this month, you read to the stenographer certain reductions of quantities. Whose work and investigations were those reductions declared?

A. Upon that of myself and Professor Brown, and some by Messrs. Munding and Getaz.

2372 Q. Did you measure any of those quantities yourself?

A. No sir, I only helped to calculate them from the measurements of the plans.

Q. Who gave you the basis for those reductions?

A. For quantities?

Q. Yes sir?

A. Mostly all the quantities reached were by calculations of Professor Brown and myself.

Q. You say "Professor Brown and yourself." Wer-n't they based upon data furnished you by Professor Brown?

A. If I had my book here I could show you exactly how it was; the data was made by Professor Brown, but we figured it together.

Q. That is to say, you did the arithmetical part of it?

A. Yes sir, and he did the copying part of it from the plans.

Q. And he furnished the data upon which the arithmetical part of the work was done?

A. That is true mainly in the case of the quantities.

Q. You did not have the investigation of these quantities made in your first preparation for this deposition?

A. Not all of them.

Q. Why were they omitted?

A. I hadn't got to them.

Q. Had you discovered the existence of the reasons for these reductions before Mr. Brown came here and showed them to you?

A. Not all of them.

Q. What do you understand the considerations to be that fixes the value of a water plant, and I ask you to take your time, and state them all fully, if there be more than one?

A. If you would indicate in what particular, I could perhaps answer your question quicker.

Q. I mean, what are the things that you take into consideration in arriving at a fair and reasonable valuation of a water plant?

2373 A. In this case, I have only endeavored to reach the cost of the replacement of the plant, and then ascertain the comparative value of the existing plant with that new plant at the date fixed, to wit, March 31, 1901, confining myself to the physical values and construction, and not prospects nor good-will, or ability to carry securities, and all that branch of subjects.

Q. What elements, said by Mr. William Wheeler, Mr. Johnston, Mr. Hider, Mr. Ludlow and Mr. Kimball to enter into this question, of valuation, do you reject?

A. I would have to read up on their testimony before I could answer that question, as I do not know what positions they take.

Q. Have you read Mr. William Wheeler's analysis of the plant?

A. I have read and re-read, but I cannot say that I have entirely absorbed it.

Q. Now let's see this Mr. Nixon; you say you have confined yourself to the physical elements of this property?

A. That is correct.

Q. Do you think that a valuation can be reached solely from the consideration of those physical elements?

A. Well the physical value might, but the prospective or speculative value might not be reached in that way.

Q. Is the physical value the thing you understand this investigation to be intended to determine?

A. Yes sir, I understand it is to ascertain the value of the property used for the purpose at the time, and not other values, or prospective values.

Q. Then I understand your position is to testify solely as to the physical value, and that you regard those physical values as determining in this case?

A. Yes sir, I would so confine myself as I would get lost if I should wander into the fields of speculation and prospecting on other values.

2374 Q. Do you think the fact that you would get lost if you considered other elements is conclusive of the other facts that no additional elements should be considered?

A. Yes, sir, I think it would be safer to cut that out.

Q. Do you think it would be right to cut it out?

A. By safer, I mean just and fairer.

Q. Which is the physical value, the replacement value or the $244,970 value that you and Mr. Brown have reached?

A. The cost of replacement we ascertained as $379,704.77 and the comparative value of the existing plant as of that date with the cost of replacement we found to be $244,970.00.

Q. My question is, which of these is the value which you placed upon this plant?

A. The comparative value.

Q. Well, what is the comparative value?

A. $244,970.00.

Q. Mr. Nixon, you have been for six months examining the books and property of this company, have you not?

A. I have been engaged in that work during six months, but not entirely.

Q. And as a result of those investigations you are prepared to say that on March 31st, 1901, this plant was worth only $244,970.00?

A. That is the result of my investigations and conclusions.

Q. I will ask you for your individual personal judgment without regard to the method in which you have worked it out?

A. Well, I would separate it and say it was my individual judgment as well as my joint judgment.

Q. In other words, if you had been the owner of this plant on the 31st of March, 1901, you would have considered it fair to compel you to take $244,970 for it?

A. That would depend upon the conditions.

2375 Q. Well, now if you consider conditions for yourself, why wouldn't you consider them for the Water Company?

A. If on the 31st day of March, 1901, I had owned the plant with an option on it, and under a contract to turn it over upon a valuation to be agreed upon, and if not agreed upon, to be arbitrated, and I had arbitrated it, this would have been the amount I would have found.

Q. Mr. Nixon, don't you know this estimate is grossly unjust to the Water Company?

A. I do not—I don't think it is—I think it is fair and full.

Q. Now what is the Water Company entitled to earn as of 31st of March, 1901, on its property?

A. Please explain your question.

Q. My question is what is it entitled to earn as of the 31st of March, 1901, on its property?

Mr. PICKLE: You mean upon an assumption of a fair return?

Mr. CALDWELL: I mean just what the question implies; he knows what it is.

A. Under what limitations?

Q. Under the limitation that its value is $244,970.00?

A. I should say, in order to dispose of fractions, I will use $250,000.00 even, that it would be entitled to have a per cent. for renewals, which is usually figured as high as 2 per cent., which would be $5000.00, and 6 per cent. interest, which would be $15,000.00, and its operating expenses, which I believe I found to be $28,661.11, which amount includes taxes, or a total of $48,661.11.

Q. Now suppose you capitalize that at $48,661.11 at 6 per cent., what would it represent?

2376 A. Approximately $800,000.00.

Q. Don't you think that capitalization of income is about as good a method of reaching valuation as replacement?

A. No, sir, I do not think so, as that is subject to a great many conditions, and brings on much more conversation.

Q. Without waiving my own judgment that neither one of them is of any value, I will ask you to state why capitalization is not as good as the other?

A. Well, one reason is that replacement value is "hard-pan" and capitalization is more or less speculation.

Q. I understand there are no elements of speculation in "hard-pan" then?

A. Not very much in this estimate.

Q. Ar-n't there just as many conditions affecting the replacement theory as there are affecting the capitalization theory?

A. I don't think so.

Q. Well, give us some of your reasons?

A. Well, replacement is based on facts, materials and substances; capitalization is sometimes based on figures.

Q. Mr. Nixon, you say you have read Mr. William Wheeler's analysis of this property. I will ask you to say whether or not you find the prices of materials, such as pipe, set out in that analysis for the years 1883-1890 inclusive. If you do not remember, I will ask you to take the deposition and refresh your recollection on the point. I mean to ask you as to the prices of materials generally; whether or not they are set out for the years indicated in that deposition?

A. Yes, sir, I find an estimate of the quantities and estimated prices are set out by Mr. Wheeler for that term.

Q. Upon what does he say those prices are based?

A. I am not able to say; there is considerable variance; the very first thing he starts out on is a difference in the length of pipe.

2377 Q. I am not asking you to criticize it at present; I am asking you upon what he claims those prices are based?

A. I don't know that I understand your question.

Q. Don't he say that the prices are according to his knowledge and experience as to the several years of which the prices are applied?

A. I don't recall whether he said that or not. He may have said so..

Q. Well, upon what do you understand his prices to be based, if not upon that?

A. Upon his estimates.

Q. Well, what are the estimates based upon, as you understand?

A. I suppose they are based upon his figures on pipe, material, construction, &c., that he might secure or obtain or arrive at, or adopt.

Q. Have you any reason to think that Mr. Wheeler's method of getting the prices for those years is not as rational and proper as your method of getting prices from Nashville?

A. The only difficulty about that kind of comparison is, that he was trying to make his prices higher, and I was trying to make mine practical, or what would be in this country.

Q. Wouldn't a perfectly ingenious treatment of the facts require you to substitute the word "low" for the word practical in your last answer?

A. I don't think so; I would be willing to say "low" rather than extremely cheap.

Q. Don't you know you are trying just as hard to make the prices low, as Mr. Wheeler was to make them high?

A. I don't think so; I don't think I have the same motive.

Q. Do you undertake to tell the court that you are any less prejudiced than Mr. Wheeler?

A. Oh, yes, I have no interest in it whatever, and Mr. Wheeler has.

2378 Q. Have you been working for the city upon a salary or upon a *per diem?*

A. Upon a *per diem,* but my salary or *per diem* would be just the same upon one valuation as upon another. If I valued the plant higher than Mr. Wheeler my salary would remain just the same.

Q. Do I understand you to present yourself in this case as an entirely impartial and unbiased witness?

A. I have tried to be.

Q. Well, do you think you have succeeded?

A. I think so.

Q. Do you not recognize in yourself an active partisan of the city in this matter?

A. Oh, no; I hope not; though I must concede that I am somewhat partisan in my makeup and have always been, but I have endeavored to be fair and conservative in this matter. I am not the attorney for the city.

Q. I find on page 118 of William Wheeler's deposition an answer to a question which I will mark around with pencil and ask you to read to the stenographer so that you may be sure it is right?

A. Mr. Wheeler says on page 118:

"I have valued each part of the property under the classification "which I have testified to according to my best judgment of its fair "construction cost, that judgment having been based upon experi- "ence and knowledge in my connection with these works, and to "some extent with other works, the estimate having reference alone "to the time of which the particular portions of the plant were "created or built. In other words it is not an estimate of what it "would cost now to reproduce the plant, but what was the fair, neces-

"sary cost of producing the plant from time to time as it was orig-
"inally built and subsequently a[illegible]ed to or altered."

Q. Then the method by which Mr. Wheeler valued the
2379 different parts of this plant in the years to which I am now referring, from 1883 to 1890 inclusive, was the same method by which you have formed your final opinions in this case, towit: by knowledge and experience?

A. In the latter part of the question, yes, but in taking Mr. Wheeler's statement as a whole he and I have traveled an entirely different road, and of course have reached entirely different results.

Q. Now, are these figures of prices in these years the market prices of the materials to which they apply for those years?

A. If you would specify the materials the answer would be easier to make.

Q. Take the item of pipe from the year 1883 to 1890 inclusive?

A. From my investigation, I think the prices he has charged for those pipe are the prices practically that the company paid; his prices of brick work I think were excessive; his prices of earth excavation were excessive; his prices of rock excavation were excessive, and in the matter of pipe, he having adopted a footage basis instead of adding up the purchases of pipe by the ton, is excessive, there being 4,000 feet discrepancy on the very first item.

Q. The pipe is the only one of these elements that Mr. Wheeler had an actual opportunity to get at, and the others are all estimates, are they not?

A. I presume so, and I don't know that he had an opportunity to get at the pipe entirely, but I presume he did, as those books show the amount.

Q. Well, you found him right as to pipe, as I understand you?

A. As to his price of pipe per ton, I found him pretty close to the prices that were paid.

Q. And you found him right as to quantities all the way through?

2380 A. I don't say that; I said there was a discrepancy of 4,000 feet of pipe on the very first item.

Q. Please indicate that discrepancy, what it is?

A. Mr. Martine gives the length of the pipe at one thing, and he (Mr. Wheeler) has adopted another measurement 4,000 feet greater.

Q. Which is right?

A. I think the superintendent ought to be nearer correct.

Q. Well, do you know which is right?

A. No.

Q. Well, then why do you select Mr. Wheeler as being wrong instead of Mr. Martine?

A. Because Mr. Martine was superintendent of the company, was on the ground and laid part of the pipe and was familiar with the affairs of the company, and is sustained to some extent by the purchases of pipe, while Mr. Wheeler's adoption of Mr. Nicholson's estimate is not sustained, but is 4,000 feet greater.

Q. Doesn't Mr. Wheeler say that he measured that pipe?

A. No, sir.
Q. Are you sure?
A. I didn't find it if he did; he couldn't have done it I don't think. There was a lot of it gone.
Q. What does Mr. Wheeler fix as the cost of initial construction?
A. $221,000.00 I believe.
Q. Now under what date do you refer?
A. December 31, 1891.
Q. Is that what you call initial cost?
A. That is what he calls initial cost.
Q. Well, what do you call the initial cost?
A. I call the initial cost the Loweree construction.
Q. Well, what does he fix the Loweree construction at?
A. He or Mr. Elbert Wheeler fixes it at $128,000.00.
2381 Q. And you fix it at $110,000.00?
A. From $110,000.00 to $112,000.00.
Q. Upon what authority do you correct them?
A. Upon the authority of the Loweree Books.
Q. You say that Mr. Wheeler fixes the cost down to 1891 at what?
A. About $221,000.00 I think.
Q. And what do you fix it at?
A. From $150,000.00 to $155,000.00.
Q. Now in what respect do you correct Mr. Wheeler in that respect?
A. Because I find that it cost that much money.
Q. Where do you find that?
A. From the books.
Q. So that you accept the books of the water company from the years 1893 down to 1891 as sufficiently well kept and full to correct these estimates of Mr. Wheeler by?
A. I accept them any time where they show, but I cannot accept them where they do not show these things.
Q. But you correct Mr. Wheeler by the books?
A. Yes sir, I can give you the items which the books show of each element.
Q. How many of those reservoirs over at Nashville did you build?
A. Two of them.
Q. And each of them was 40 by 80 feet and 8 feet deep?
A. Those were built by Mr. Roderick.
Q. Which did you build?
A. Mine was 53 by 55 feet and 10 feet deep, I think.
Q. You built the settling basins, did you?
A. Yes sir that is what we used them for.
Q. What is the difference between a settling basin and a storage reservoir, as you understand it?
A. One holds raw water and the other filtered water.
2382 Q. Each of your settling basins was 53 by 55 feet, and how deep were they?
A. My recollection is that they were approximately from 53 to

55 feet and 10 feet deep; I do not remember exactly; that has been three years ago and I can't recall exactly.

Q. What did those reservoirs cost, each one of them?

A. I don't know whether the estimate in that book shows or not. You can tell from the book.

Q. Well I want you to tell me?

A. I think that book shows; if you will let me have it I will see if I can find it for you; I think that book shows everything, about the penitentiary.

Q. Does it include the Cherokee Pump Station and two reservoirs 40 by 80 feet—that don't refer to it does it?

A. No sir.

Q. An artesian well at the power house and pump equipment, does that refer to it?

A. That is another supply.

Q. The Cumberland river, is that it?

A. That is it I guess.

Q. Well have you any recollection of what they cost?

A. It is very vague. I can find it if you will let me have the book.

Q. Well I have no objection to your having the book?

A. $——.

Q. I want to read a sentence from page 120 of William Wheeler's deposition, "I ought perhaps to say that as to the quantities of pipe laid prior to our purchase in 1890, I had made a careful survey, not only upon the surface, but by means of excavations to determine the limits of pipes of all sizes, the location of gates and covered portions of the work not of course uncovering a pipe throughout
2383 its whole length, but determined from the ends of the pipe in the streets, and from that survey we have made our construction records, showing every piece of pipe and the exact length of the pipe in every street, and the result of that survey is also incorporated into the complete plans which I have here." Mr. Wheeler having made that statement, do you still prefer Mr. Martine's statement to his?

A. In that particular I do.

Q. Why?

A. Because that was away back yonder, and I don't think it would be as reliable, as a statement made by the superintendent of the works who was in charge of the work at the time.

Q. When was the pipe laid?

A. In 1882, 1883 and 1884.

Q. Was Martine superintendent then?

A. No sir he was superintendent after the completion of construction.

Q. Does it anywhere appear that Mr. Martine ever made this kind of a survey that Mr. Wheeler made?

A. I don't suppose it was necessary, as he had the maps and data.

Q. Have you ever heard of any such maps?

A. Yes sir, the testimony shows it.

Q. Can you show me any place in the testimony where maps were made?

A. I can produce a reference to it.

Q. How long before the pipe was laid before Martine came into the office as superintendent?

A. About a year.

Q. Do you undertake to say that Mr. Wheeler has charged for any pipe that is not in the works or was not in it at the time he states it was there?

A. I don't know, but I called attention to this discrepancy.

2384 Q. Where is this particular pipe laid?

A. I have no idea, I never tried to trace it up.

Q. Where did you get your information that Martine was 4000 feet less than Mr. Wheeler?

A. From Martine's deposition.

Q. In what case?

A. In the case of the City and the Water Company, but not this case. It is in the same deposition that Mr. Wheeler refers to.

Q. Is that deposition in evidence in this case anywhere?

A. I don't know whether it has been filed or not.

Q. Does Mr. Martine anywhere state that he has any personal knowledge of this matter by investigation or otherwise?

A. Well I think I can show you just what he says. Mr. Martine says, June 2nd, 1884:

20	inch	200	ft.
16	"	555	"
14	"	2600	"
12	"	2400	"
10	"	4375	"
8	"	9225	"
6	"	14330	"
4	"	9710	"
	Total	43390	

Q. What does Mr. Wheeler say?

A. The same as Mr. Nicholson:

14	inch	2578	ft.
12	"	2430	"
10	"	4496	"
8	"	7759	"
6	"	17679	"
4	"	11973	"

Mr. Wheeler's footage is 4025 feet more than Mr. Mar-
2385 tine's who was superintendent of the water company at the time he testified.

Q. In what size of pipe does the largest discrepancy occur?

A. It occurs in the 4 inch, 6 inch and 8 inch pipe, and some in the 10 inch pipe.

Q. You say Mr. Nicholson has a statement there also?

A. That is the one I read: it has the same measurements exactly.

Q. As whose?

A. The same as Mr. Wheeler's.

Q. There is a discrepancy between Mr. Nicholson and Mr. Martine's statements?

A. Yes sir, and Mr. Wheeler adopted Nicholson's, it seems.

Q. Didn't Mr. Nicholson represent the city in that suit?

A. I don't know what he represented.

Q. Doesn't it appear in the deposition that he was city engineer?

A. I don't remember.

Q. I wish you would look and see?

A. I hav'n't the deposition here, but I will look and see.

Q. Then when you come to the final facts in the case the discrepancy is between Mr. Nicholson and Mr. Martine?

A. The difference seems to have first arisen between them and Mr. Wheeler adopted the greater measurements.

Q. Now if it should develop that Mr. Nicholson was still engineer, you still prefer Mr. Martine's statement to his, would you?

A. I should think so; I should think the superintendant of the water company ought to know better then the city engineer about the length and different sizes of pipe.

Q. Is it not a fact that Mr. Nicholson testified that he measured the pipe?

A. I suppose so; I don't see how he could have gotten it
2386 if he hadn't.

Q. Isn't it a fact that he testifies that he did measure it?

A. Before answering that question I would first have to refer to the deposition.

Q. He was the City Engineer wasn't he?

A. He might have estimated it or taken it off the map; I don't know how he got it until I would look and see.

Q. Now if it should appear that Mr. Nicholson did measure it, and as it already appears that Mr. Wheeler says he measured it, would you still prefer Mr. Martine's statement to those two?

A. I think I would, as Mr. Martine was superintendent of the company at the time, testifying in behalf of the company, and it was fresh on his mind, and I should think that he would be more apt to know than an outsider or another man giving the amount 20 years afterwards.

Q. I understand then you would attribute very great weight to the superintendent of the company, Mr. Martine, and Mr. Kimball in matters of this kind?

A. Yes sir I have been giving them a great deal of consideration.

Q. On page five of your deposition, testifying about the Treasurer's accounts in his book, you refer to the fact that the accounts skip from page to page, that there are inserted leaves and additions made to pages by pasting on additional paper. Is it not a fact that in all this skipping about, the pages are properly referenced so that no trouble would be found in getting at the proper page and in chronological order?

A. Yes sir that is a fact; I had no trouble in tracing them from place to place.

Q. Then what is the effect of that criticism upon the books?

A. I didn't make any criticism; I simply referred to the
2387 fact.

Q. Well then what value in the evidence has the fact?

A. Well you will have to judge of that; you are one of the lawyers.

Q. Why did you put it in there?

A. Because I was asked as to the character of the book.

Q. Isn't the method and about the only method including the additional sheets pasted in this book between pages 98 and 99, and also the addition to page 11 that would be adopted to extend the book to the end of a fiscal year where the regular pages were not sufficient for that purpose?

A. That might be an explanation of it.

Q. Well isn't that an explanation?

A. Yes sir it is a reasonable explanation of it if the pages that were cut out were accounted for.

Q. On page "6" of your deposition you say that these inserted pages furnish more items than any other part of the book, as they itemize the charges and credits to a greater extent than in the remainder of the book, the balance of the book simply giving the naked figure?

A. Much of the balance of the book.

Q. Don't you say "the balance of the book" instead of "much of the balance"?

A. Well I should have said much of the balance.

Q. Well what did you say?

A. Well I should have said much of the balance.

Q. But what did you say; that is what I want to know?

A. Well I would qualify that statement by saying "much of the balance of the book.'

Q. Is not the journal for the year- 1898 and 1899, which is contained on pages 193 and 200, and on pages 90 and 98 as fully itemized in all respects as that portion of the journal contained
2388 in the inserted pages?

A. Yes sir approximately so.

Q. Then I assume that you modify your statement that the inserted pages furnish more items than the others?

A. Than much of the others. I modify my statement so as to say that they furnish more items than much of the remainder of the book.

Q. Well let's inquire about that; is not the journal for 1897 and 1898 contained on pages 184-190 as full items as those contained in the inserted pages?

A. Yes sir those pages are pretty full items—the pages from 184 to 190.

Q. Isn't the same thing true of the journal for the years 1896-7 contained on pages 173-183 of the journal?

A. There are a great many items, but not fully explained on those pages.

Q. The question is are they not as full items as the others?
A. I don't think they are; it has items but not explained.
Q. Can't you reach one of those references by which you can get full explanations in that book?
A. No I think not.
Q. Look at them and see?
A. Well there is much of this that I cannot find.
Q. If it is there then you admit you can't find it?
A. I admit that I can find it here but I don't know what it is.
Q. Why?
A. On page 173 is marked "new services" here is an item of $23.48. Was that for pipe, labor, digging, fixtures, or what?
Q. Read the two lines at the head of the page please?
2389 A. It says: "Sundry to Supplies per W. H. H. weekly report."
Q. Now doesn't that then go on to itemize that supply account?
A. It itemizes figures.
Q. Don't it itemize them as per W. H. H. report?
A. It says: "Sundry to supplies, per W. H. H. weekly report."
Q. You understand what I mean don't you Mr. Nixon?
A. Well I can assume.
Q. Did you call for those weekly reports?
A. I don't know whether I did or not; I don't think I would have gotten them if I had as that was too far behind my time.
Q. Did you call for them?
A. I don't think I did. I didn't think there was any use in it.
Q. Did you ever see those two lines at the top of the page before?
A. Oh yes.sir, I saw them.
Q. Isn't the journal for the years 1894-1895 contained on pages 138-156 as full items as those in the inserted pages?
A. Part of it is; from 142 on; from 138 to 141 is the figure items again.
Q. Please read the two top lines on page 138?
A. "Sundry to supplies, taps, to W. H. H. weekly report" and about 50 or 60 items of figures without anything to show what they are. It is not usual to keep books that refer to papers outside of the books.
Q. Suppose you substitute the word "voucher" for report?
A. That would do if the book were run on a voucher system, but these were not at that time.
Q. How do you know they were not?
A. Because I didn't see any.
2390 Q. Did you ask for any?
A. Yes sir I think I had the vouchers after they started.
Q. Did you ask for the vouchers for this year?
A. I had the vouchers from "1" on up.
Q. Did you ask for any of the vouchers for this year?
A. No sir, and I don't think I would have gotten them if I had.
Q. Did you ask for them?
A. I don't think I did.

Q. Isn't the journal for the year 1893-4 contained on pages 120-136 as full items as the part of the journal in the inserted pages?

A. No not entirely.

Q. How much of it does it lack?

A. Pages 125, 126, 127, 128, 129 and most of 130 is a skeleton.

Q. Those skeletons refer to "W. H. H. report" don't they?

A. It says, "W. H. H. accounts."

Q. Isn't the journal for 1892-1893 contained on pages 100-118 as full items as the journal in the inserted pages?

A. From page 100 to 110 it is itemized, and on pages 11, 12, 13 and 14 are skeletons, two of the pages not even having any reference to anybody's report, referring to pages 12 and 13.

Q. Please look back to where the skeleton begins and see if you don't find a report of the account?

A. No sir, it says, "sundry to supplies."

Q. Then the statement that the balance of the book is bare naked figures as contained on page 5 of your deposition is admitted by you to be incorrect, and is it not also a fact that the inserted pages furnish more items than any other part of the book is generally incorrect?

2391 A. The first part of the question I modified by s-ying that much of the balance of the book is naked figures. In answer to the latter part of the question I would say that this is not entirely incorrect but is subject to some modification.

Q. On page 7 of your deposition you say that there are "A great many charges for the years 1896 or 1897 mixed with the year 1900, and the charges for the year 1900 are back and mixed in with the charges of 1896 and 1897." I will ask you to show any charges under the year 1900 relating to the years 1896 or 1897?

A. On page 13, a payment of $5,000.00 for the year 1892 is inserted under the year 1893.

Q. Well I am not asking you about that for the present. My question is about matters covered by your statement I have quoted to you in which you say "a great many charges for the years 1896 or 1897 are mixed with the year 1900, and the charges for the year 1900 are back and mixed in with the charges of 1896 and 1897." I now ask you to show me any charges under the year 1900 relating to the year 1896 and 1897?

A. ——

Q. Now I will ask you to show me any charges on the books for the years 1896 or 1897 or any entries under those years that relate to the year 1900?

A. Well here are some on page 204, $78,000.00; October 30th, $37,000.00, March 31st, $22.86, and March 31st, $38,443.94, that is not in chronological order, it being 1899 charges after 1900 charges had been made.

Q. That is under the year 1900 is it?

A. As I stated it was charges for 1899 entered after the charges for 1900 had been made.

2392 Q. The question I asked you was to show me on the books for the years 1896 or 1897 any entries that related to the year 1900?

A. Well I would have to go through the books to locate them, as I haven't the memoranda with me from which I testified before.

Q. Well you can't find them now?

A. Not without taking some time.

Q. Now turn back to those which you say are improperly entered there. Now see to what years those ought to be assigned?

A. Item, May 23rd, $78,000.00, charged to construction refers to Cash Book page "1," and on Cash Book page "1" on the annex, an addition pasted on occurs this charge after charges for 1900, of May 23rd, "construction E. W. account, L. B. W. Co. $78,000.00"; and the charge of October 30th of $37,000.00 refers to Journal page "100"-F. Page "100"-F. is one of the inserted pages in the Journal and the item is there stated in 1899 after the charges of 1900, "construction to sundries, E. W. account, L. B. W. Co. purchase, $37,000.00. Item of March 31, $22.86, refers to Journal page "100"-G. Page "100"-G. is an inserted page, and this item is found under charges of "sundries from L. B. vouchers to L. B. Disb. on K. W. Co. Collection reports to L. B. W. Co. $22.86. Then the charge of March 31st, 1899, $38,443.94 refers to Journal page "100"-I. Journal page "100"-I is an inserted page and is a summary of construction to sundry charges and extensions, $21,666.69, tools $273.98, reconstruction $23.04, new services $2378.48, new office building $9,622.31, office furniture $176.59, franchise $4,302.95, making a total of $38,443.94.

Q. How is that dated?

A. These inserted pages are dated, Journal 1899 and 1900, but on the charge of the Journal they are posted after the 1900 charges had been made. Here on page 208 after the charges for 1900 is charge May 23rd, 1899, $78,000.00 by bills payable.

2393 Q. Look that up by the references?

A. It refers to Cash Book page "1-A." Cash Book page without any number is charged with a note on May 23rd 1899, note payable to F. P. McQ. per E. W. $78,000.00.

Q. Now right there, that $78,000.00 balances the $78,000.00 of the Lonsdale-Beaumont purchase you read awhile ago, don't it?

A. I suppose it does; they are the same amounts anyway. They seem to have been worked into the book afterwards.

Q. Now when was the Lonsdale-Beaumont consolidation—the legal consolidation of it—effected?

A. I understand the first of January 1900, but these charges refer back to May 23, 1899.

Q. Assuming that they are with reference all of them except the one dated May 1899, to the Lonsdale purchase, where -lse would you have entered them?

A. I think I would have entered them under the year 1899, the year to which they belong instead of entering them in the year 1900 as of date 1899. The legal objection couldn't have been very strong. You could let the books show the fact.

Q. On page 7 of your deposition you say "well the peculiarities that I would point out would be on the first page of this book the amount has been erased and a credit written over it "Elbert Wheeler $33,000.00" as cash received" is it not evident from the book that

the $33,000.00 item was entered prior to the amount, whatever it was on the next line that has been erased, and that the $33,000.00 never was erased?

A. As far as I can see, both lines have been erased—the indications are that both lines have been erased. The second line, the line after this charge, shows very plainly its erasure.

Q. And do you insist that the $33,000.00 has been erased?

A. It looks like that to me.

2394 Q. Now isn't it evident that the $33,000.00 was entered prior to the amount whatever it was on the next line that has been erased?

A. No sir it is not conclusive. It might have been entered before the following amount had been cleared away, or it might have been entered since; that cannot be settled from the books.

Q. Then is it not evident from the ruling in red ink on this page, closing this account, that this erasure was a footing only and evidently entered by the bookkeeper in a wrong line and then erased?

A. That might explain it.

Q. Don't you think that it does explain it?

A. There seems to have been two amounts erased in that line.

Q. Look at the remains of figures 3-1-8-1-4?

A. A magnifying glass might make these disclosures but with the naked eyes it appears that two lines of figures have been erased.

Q. Well isn't it your judgment now that there was merely an erasure of a footing?

A. I think that surmise is reasonable.

Q. On page 7 of your deposition you say "the next scratching is on the opposite side of page "1" where interest account has been erased and there appears "E. W., William Wheeler and William H. Bowker" does not this scratching consist simply in drawing a red line through the word interest in two different places and making an additional entry, leaving the account so that anyone can easily determine what it was before as well as since the alteration?

A. This would be true if it hadn't been that the amount
2395 seems to have been scratched also.

Q. State what the alteration does consist of?

A. I cannot say. Interest has been scratched with a line through it and "E. W. endorsements, W. H. mo $45.00 and interest, William H. Bowker endorsements," and something scratched out, "$45.00."

Q. What do you say has been erased?

A. Why the amount seems to have been erased.

Q. Do you know what it is?

A. I don't know what it is. $45.00 is there now.

The further taking of this deposition was adjourned until Friday morning, October 16, 1903, at 9:00 o'clock A. M.

FRIDAY MORNING, *October* 16, 1903—9:00 o'clock a. m.

The further cross-examination of W. M. NIXON resumed.

Examination by Mr. CALDWELL:

Q. Referring to the $45.00 item on page "1" of the Treasurer's book I ask you to state first whether or not the amount, $45.00 has been erased, and also in regard to the erasure on the second line below that, if you can't see that whatever has been erased there is simply "W. R. memo." like the "W. R. memo." that appears in the line first referred to?

A. No, the $45.00 has not been erased. My statement was that some other amount appear- to have been erased before the $45.00 was written. As to the second erasure, after endorsements, the words erased may have been "W. R. memo." or they may have been "W. R. m." something else. There is some conjecture as to what was erased.

Q. I will ask you the direct question if that last erasure doesn't appear to be "W. R. memo."?

2396 A. Not to me it doesn't; it might under a more powerful glass than my spectacles, but "W. R. m." is as far as I can go intelligently. It looks more like "W. R.—mining" or "mimmy."

Q. Are you prepared to show us this morning any charges on the books of the year 1900 relating to the years 1896 and 1897, as blanks were left in your deposition yesterday to be filled on that point?

A. No I am not prepared this morning, not having brought my memorandum, and having located them before.

Q. Didn't you look through the entries of the year 1900 on yesterday?

A. No sir not entirely; without my memoranda would involve looking through the entire Cash book and the entire Ledger and every account.

Q. You said in your deposition on page 7 that there were a great many charges of that kind. Do you still adhere to that statement?

A. Well I would say that there were "several" instead of a great many.

Q. But you are not prepared to show any of them this morning?

A. I am not prepared this morning to point them out.

Q. Do I understand that you are not prepared either to show that there are any charges in the books under the heading of 1896 and 1897 that relate to the year 1900?

A. No, not without my memoranda, unless I was to take time to go entirely through the books again.

Q. You say on page 7 of your deposition that there is "An entry in a different hand at the bottom of page 6 crediting Elbert Wheeler with $8,000.00." Isn't this amount necessary to make the cash balance, and are there any erasures in this item?

A. I couldn't say only that it is in a different hand and is a credit of Elbert Wheeler, of $8,000.00. Whether it is neces-

2397 sary to make the cash balance, I do not know without computing the cash up to that time. Some writing has been

erased where this $8,000.00 is written, as well as two or three lines above it that appear to be scratched.

Q. You are positive of the erasure under the $8,000.00 item are you?

A. Yes the books plainly show to me that something has been erased or scratched off.

Q. I wish you would make the necessary additions and see if that $8,000.00 is not necessary to make that cash balance?

Mr. PICKLE: I submit that calculations like that cannot be called for.

WITNESS: I would have to go back through the whole year's business to do that. I would take some time to do it.

Q. You say you are unable to test the balance without going back through the whole year's business?

A. I don't know, I can find out by making an experiment.

Q. Well we will omit that for the present then.

A. It is not the proper place to make the entry in order to get a cash balance, because it is behind 1892.

Q. What year is it entered in?

A. It is entered in 1892 or 1893.

Q. Are there not numerous other entries in this book, particularly closing entries and footings in the same handwriting as this particular entry of $8,000.00?

A. There are numerous entries which appear to be in that hand at the bottom of pages covering quite a large amount.

Q. Do you find anything objectionable in the fact that that handwriting is used?

2398 A. No, the books are not always confined to one handwriting, but this different handwriting evidently indicates that the party who made these entries in this hand was adjusting the books, or making closing entries or additional entries, or revising and shaping up the books after the regular bookkeeping had been done.

Q. You say on page 7 of your deposition that "On page 7 (of the book) several operating items, five lines have been scratched off and rewritten or something." Assuming that you refer to certain lines containing sub-divisions of the expense account is it not a fact that such erasures as occur, are only such sub-divisions, thereby showing simply mistakes in sub-dividing, and that the totals of such sub-divisions in all cases have not been disturbed at all and that all the sub-divisions embraced in these five lines have not been disturbed?

A. That is a fact.

Q. You say in your deposition on page 7 that "On page 20 there has been written in a different hand four entries of income accounts and a credit of the Knoxville Water Company, and a credit to Elbert Wheeler of $5,000.00." Isn't this the same handwriting that appears in connection with the $8,000.00 items on page 6 of the Cash, and in various other parts of both the Cash and Journal; for instance at pages 100-118 and from 120 to 137?

A. The four entries referred to on page 20 appear to have been

in the same handwriting as the credit of $8,000.00 to Elbert Wheeler on page 6. There is a similar handwriting appears on page 100, and from 100 to 105, when a different handwriting then interven-s to page 110 when it appears to return again, and from page 110 to 114 may have been the same handwriting, but it was done with a different pen perhaps, and nearly all the totals have been erased and changed, and on pages 115, 116, 117, and 118 the
2399 same handwriting seems to have been used. The party using this hand appears to have been very indefinite as he has made a great many changes.

Mr. CALDWELL: I ask the court to strike out the last sentence of the witness as it is not responsive to my question.

COMMISSIONER: I don't think it is sufficiently material for me to strike it out, though it would be more in form if the witness would make less general comments.

Q. Now I will ask you to look at pages from 120 to 137 as to that same handwriting?

A. Pages from 120 to 137 appear to have been written in a similar hand.

Q. Referring to the first three items on page 20 which you say were written in a different hand, are not those three items simply footings of the three columns on that page?

A. They appear to be, as pencil footings by the same hand are under the three adjacent columns of figures.

Q. You state that these items are without date?

A. Yes sir.

Q. From their amount and relation to the columns of their footings, is it not apparent their date is of the same date as that last written, to-wit: March 31, 1894?

A. This date could be inferred from the position——

Q. And isn't that the natural inference?

A. —and this would be the reasonable inference.

Q. Doesn't it appear from previous and later entries that it was customary in keeping the books to omit the dates as superfluous, except the first item bearing a particular date?

A. Well there are a great many dates omitted throughout the books.

2400 Q. As that is not responsive to my question, but a gratuitous criticism of the books, I will ask the stenographer to read the last question, to you again?

(Question repeated by stenographer.) Doesn't it appear from previous and later entries that it was customary in keeping the books to omit the dates as superfluous, except the first item bearing a particular date?

A. It does not appear that there was any particular system followed in this regard. The omission is frequently made, and sometimes it is not made.

Q. You say on page 7 of your deposition that "On page 23 (of the book) either an erasure appears or it is written in a different hand, it being a charge of the Knoxville Water Company $109.33 and ex-

pense account $8,385.80." Isn't this the same handwriting referred to in the previous question?

A. The figures are in the same handwriting as the $8,000.00 referred to, but the writing of the entries is in a different hand.

Q. Ar-n't these items simply the footings of the respective accounts to December 31, 1893?

A. I couldn't say without a calculation to ascertain.

Q. What do you conclude from such examination as you have made?

A. Well I have no conclusion on this point, and couldn't reach a conclusion without a calculation.

Q. On page 8 of your deposition you say that "On page 25 there are additional entries at the bottom of the page charging expense account with $12,822.56, expense North Knoxville Water Company $314.87 and Elbert Wheeler with $8,000.00." Ar-n't these in the same handwriting as that previously testified about?

A. These are in the same handwriting as the $8,000.00 item first discussed.

2401 Q. Ar-n't the first two items, last mentioned, footings to March 31st, 1894?

A. They so appear here now; I don't know whether these pencil figures were here before or not, but that is not material though.

Q. Are the pencil figures right or wrong?

A. They appear to be correct.

Q. You don't undertake to say they were not there when you examined the book before do you?

A. I don't know whether they were or not.

Q. Can you say whether they were?

A. I couldn't say whether they were or not.

Q. Why do you mention the possibility of their having been there?

A. The pencil figures agree with these other figures in a different handwriting.

Q. Isn't the item of $8,000.00 to Elbert Wheeler simply to balance the item at the bottom of the page, being page 6, heretofore referred to?

A. It might be as it is the same amount, but entered under a different year.

Q. Well entering under a different year is right isn't it because it was paid in a different year?

A. It is the wrong way.

Q. Why is it the wrong way?

A. Because if a payment was made in 1893 it should be charged in 1893 and not under the year 1894.

Q. How do you know the payment was made in 1893?

A. Why I infer from the dates following the charge.

Q. Let me ask you if this reference 3-31-93 on the same line with the $8,000.00 entered on page 25, does not refer back to March 31st 1893 on page 6 of the book, where the loan of $8,000.00 was

2402 made by Elbert Wheeler to the Knoxville Water Company, and if it does not appear on page 25 opposite the $8,000.00 entry that it was paid April 1st, 1893? isn't that a fact?

A. I don't think so. It is possible such conclusion might be reached, then it might not, as these dates don't jingle.
Q. That is under the head of "cash" 1894?
A. Yes sir.
Q. Now ar-n't the two items, $12,822.56 and $314.87 brought forward from and in the same handwriting as they appear in the expense account page 226 of said book?
A. On page 226, March 31st 1894 are two charges, one March 31st, 1894, $12,822.56.

Mr. CALDWELL: I object to that answer.
COMMISSIONER: Just answer the question direct Mr. Nixon. There being objection to it your own counsel can bring it out.

A. The handwriting appears to be the same handwriting as the charges "March 31, 1893" on cash book.
Q. Why then were these two last mentioned items brought into your deposition; what is these peculiar about them?
A. The discrepancy of one year in the dates is the peculiarity.
Q. Show me in your original deposition anything to indicate that that is the reason you put them in?
A. The answers in my original deposition were in response to questions of any irregularities or discrepancies that may have been discovered in the books, and this item was referred to in that category.
Q. Has not the reason of the last disparaging dates occurred to you within the last ten minutes for the first time?
A. I don't think so.

Q. You say on page 8 of your deposition that "on page 29
2403 the last charge on the last line has been erased and a charge to the North Knoxville Water Company of $323.22 is made." Has anything been erased where the letters "No. K. W. Co." are written, or is the erasure after these words or letters, although on the same line?
A. The erasure is more pronounced after these letters.
Q. Is not this item as it now stands exactly as it appears on Ledger page 306 of the same book?
A. The same amount is charged in a different hand on page 306 under date of December 31, 1894.

Mr. CALDWELL: I will ask the court to strike out the gratuitous insertion "in a different hand" and that the witness answer my questions without arguing the case with me.
COMMISSIONER: If you will ask him whether the same amount appears on page 306, then I will sustain your objection.

Q. Does not an item of the same amount appear on page 306 of this same book?
A. Yes sir under date of December 31, 1894.
Q. Now isn't that the item that is brought forward to, or appears on page 29?
A. I could only infer, as no date is given to the item of this amount charged on page 29.
Q. Well what do you infer?

A. Well I don't infer it.

Q. Now look and see if it is under the date which is further up on that column, which is usual?

A. It has no date; the date further up on that column would have no year, but the last year named is 1893.

Q. What is the heading at the top of the page?

A. "Cash 1894."

2404 Q. Is not this charge of $323.22 on page 29 the footing of sundry items charged to the North Knoxville Water Company from April 6, 1894 to December 31, 1894, and in exact agreement with the penciled footing of column in which such entries were made during this period?

A. It is the same amount as the pencil footing on this page.

Q. Well is it not the correct footing of the sundry items charged to the North Knoxville Water Company?

A. Well to answer that question would involve the addition of several pages.

Mr. PICKLE: I suppose it is correct; we will not dispute about that.

Q. You say on page 8 of your deposition that "On page 226 (of the book) in Profit and Loss Account, credits by expenses of $35,476.88 and $1,621.11 appear to have been erased and rewritten or something else erased where these amounts are inserted." Don't these amounts tally with the same amounts on page 95 in the journal where the aggregate $35,476.88 appears and is sub-divided, and on page 97 where the item $1,621.11 also appears?

A. Yes sir these amounts appear on pages 96 and 97 of the journal but also have been scratched there and rewritten.

Q. Now see if that aggregate on page 95 is not a correct aggregate of the various items?

A. It is a correct aggregate of the figures on that page after the changes that have been made in them.

Mr. CALDWELL: I will ask the court to strike out the last part of the answer.

COMMISSIONER: It is a correct aggregate of the figures as they now appear upon the books?

The WITNESS: Well that language will do.

Q. Now how about the item of $1621.11 on page 97?

2405 A. The same answer as on page 95.

Q. You say on page 8 of your deposition "There appears a scratching of interest account on pages 228 and 229 by which the amounts have been struck out." Please indicate specifically where on page 228 any amount has been struck out?

A. On page 228 an item of $218.33 has been struck out and "See 229" in red ink written, which is supposed to be as an explanation.

Q. Well do you find the explanation on page 229?

A. I find on page 229, April 10th 1899 an item has been erased and $218.33 inserted.

Q. Under what date?

A. April 10th 1899, the same date as the item which was erased.

Q. Is there anything covered up or hidden about these changes there in those two pages?

A. I don't undertake to say, or to charge, or to assume.

Q. Don't this amount of $218.33 appear to have been properly brought forward from Cash page 66?

A. Yes, this item is on page 66 in a scratched place.

Mr. CALDWELL: I ask the court to exclude that last voluntary statement, "in a scratched place" as it is purely irrelevant and an improper statement.

The WITNESS: Well somethinng ought to account for these changes.

COMMISSIONER: Mr. Caldwell, you will have to be very particular and use the word "amount" instead of the word properly. If your question should be is not the same amount brought forward from page 66 why then I will require the witness to answer the question simply yes or no.

2406 Q. You say that the item of $2,986.70 on page 229 of the book is struck out without explanation. Doesn't page 85 of the Cash book from which the items, of which this is the sum were manifestly posted, show these items to have been charged to the personal accounts of William Wheeler, Elbert Wheeler and W. H. Bowker, and do not the entries on page 85 indicate that they were on account of endorsements?

A. The charge on page 229, January 2, 1900 of $2,986.70 is struck out by running a red ink pen through it, and referring back to page 85 of the Cash book there are similar items to "William Wheeler," W. R. mem., % end. and E. Wheeler, W. R. mem. % end. W. H. Bowker" ditto, ditto, ditto.

Q. Well do those entries on page 85 indicate that they were on account of endorsements?

A. The entry on page 85 indicates it was first charged to interest and then changed to these gentlemen on account of endorsements, or otherwise, it is hard to say. The change was made and the amounts have been scratched.

Q. What do the entries as they now stand indicate?

A. The entries as they now stand indicate that this payment of $2,986.70 that was formerly charged to interest is now charged to these gentlemen.

Q. On what account?

A. On account of "W. R. memo's and endorsements."

Q. Who is "W. R. memo's?"

A. I don't know him.

Q. Are you stating that purposely when you know it means memorandum?

A. I assume it is a memorandum. I asked Mr. Kimball who it was and he said it was the Wheeler Reflector (Company) memorandums.

Q. In salary account on page 244 you say is an item of date perhaps March 31st, 1900, $4,448.37 which appears to have been

changed or scratched and written on top of the scratching.
2407 Has not this item been brought forward from journal page 99-X where it appears without erasures?

A. The same amount is on page 99-X.

Q. Well is it without erasures on page 99-X?

A. Well that is difficult to say, as the items making it or composing it have some of them been erased.

Q. Do you say there is any erasure in that particular item?

A. Well I hardly think there is as it comes from this annex page.

Q. If it had been on any other page would you think, as it now stands, there had been any erasure of it?

A. No, if written on another page as it now stands it would not indicate an erasure unless it arose in the changing of the amounts of which it is composed, which has been changed.

Q. Could a change in amount of which it is composed affect that particular item?

A. It depends upon the time when the change in the other amount was made. If the change in the other amount was made before the addition it would affect it; if made after, it would not affect it.

Q. On page 34 of the Cash book you say "there appears an entry without date in a different hand crediting Elbert Wheeler with $18,000.00." Isn't it a fact that this is the same handwriting as some other portions of the book, as for instance the five lines preceding this entry and the word "Wheeler" eleven lines above?

A. Yes sir on page 34 is such an entry and it appears to be in the same handwriting as the preceding five lines, and in the same handwriting as the item of "Wheeler and Parks, $1,000.00 May 29, 1894" eleven lines above.

Q. On pages 56-57 you say "the two last entries on page 56 appear to have been erased and rewritten, the same being in-
2408 terest G. McCou. $75.00 and the other is interest coupons George F. Fairchilds $180.00. The two last items have been scratched or erased and the items now standing charged on March 31st, taps three months $230.00, water three months $16,526.16." From what do you derive your conclusion that any account with G. McCou. or George F. Fairchilds ever appeared on page 56, or if they did that they were erased therefrom?

A. My answer on that question appears to have been confused. I intended to say that the two last items on page 57 one to G. McCou. for $75.00 and the other George F. Fairchilds $180.00 are written where some scratching has been done, and that on page 56 the two last items, taps three months $230.00, water three months $16,526.16 have been written where some figures or writing had previously been scratched.

Q. Now isn't it a fact that those taps $230.00 is brought down and closed in the last column of cash from the first column where the total is found in detail?

A. These charges on page 56 are the same amounts as the pencil footings of the two adjacent columns.

Q. You refer then to water three months $16,526.16 and taps $230.00?

A. Yes sir.

Q. Well then they are both proper entries, are they not?

A. In the present condition I would say they are.

Q. You say that on page 57 "two items appear to have been scratched and Elbert Wheeler is charged $247.89 and Neptune Meter Company $305.10 and interest coupon" adding that you are not certain about that $480.00. Does not a careful examination of this scratching show that what actually was on this page was the usual red lines drawn to close the page and which lines evidently were erased to allow further entries to be made?

A. Where these items on page 57 are made, the erasures have been so skilfully done that I am unable to ascertain what was
2409 erased. On the opposite page the explanation of the erasure of the red lines is apparent.

Q. Isn't it also apparent on pages 56 and 57?

A. It is not.

Q. Now please turn to page 66 of Cash book where you say that the last four items appear to have been scratched and rewritten, to-wit:

Water three months	$17,029.64
Interest A. W. Settlement loan	218.33
Notes payable, two $5,000.00 each	10,000.00
Notes payable, two $5,000.00 each	10,000.00

Now isn't the first of these items "water three months $17,029.64" simply the closing of the most of the details making up this amount as they appear in the second column of the same page?

A. It is the same amount as the pencil footing of column headed "Water" on same page.

Q. Do you admit the correctness of the pencil footing?

A. I couldn't tell without computing it.

Q. Do you dispute it?

A. Well I don't dispute it or I don't verify it without an addition.

Q. Are not the two items of $10,000.00 each properly explained by the text on the same line which shows the erasure?

A. Yes sir, they show $10,000.00 each.

Q. You say on page 9 of your deposition that on page 76 of the book "at the bottom the last two entries seem to have been erased or scratched before the last entry was made. Lonsdale-Beaumont Water Company October the 28th, $129.54; Lonsdale-Beaumont Water Company November the 11th, $595.31." Isn't it a fact that the $129.54 has not been erased?

A. Well I didn't say it had been erased; I said the paper had been scratched before it was written.

2410 Q. Isn't it a fact that there has been no scratching under where the figures "$129.54" now appear?

A. I don't think so; I think there has been scratching on five lines.

Mr. CALDWELL: I object to the last part of the statement.

Q. I am asking you whether there has been any scratching under where the figures $29.54 now appear?

A. Yes sir I think it has been scratched where written.

Q. Look at the Ledger page 305 and see if these amounts don't appear there?

A. Yes sir they are on the credit side of the Lonsdale-Beaumont Water Company account on page 305.

Q. Are there any erasures under where they are written on page 305?

A. Not under where they are written.

Q. Where these entries appear on page 76, do you undertake to say that they are anything more than mere clerical corrections of wrong entries?

A. I don't undertake to say anything about that.

Q. Then why do you say anything about that in your deposition at all?

A. Because they were written on places that had been scratched.

Q. And what significance did you attach to that?

A. I hav-n't attached any whatever.

Q. Well what made you put it in your deposition then?

A. Because it was in response to questions I was asked concerning.

Q. You say on page 9 of your deposition that "On page 85 two items of interest are stricken out leaving William W. $1661.51 and E. Wheeler $662.59 and W. F. Bowker $662.59, being
2411 amounts paid them account endorsements." It is a fact isn't it that these items are simply corrected with red ink, without conceding anything and with explanation of actual charge of items following, are they not?

A. The interest is stricken out in red ink.

Q. Is there anything concealed?

A. No I see nothing concealed as the matter stands now, the charge simply having been changed.

Q. On page 85 you say that "the last entry appears to have been scratched and rewritten, or scratched before the writing was placed on it." Isn't the scratching here simply in the place where the footing of the columns occur, and are not the amounts in said columns the correct footing as evidenced by the additions of the columns?

A. No, the principal scratching is back on the line where the writing should have been made as well as where the footings are now inserted in red ink. Whether these totals are correct or not would depend upon calculations.

Q. Did you calculate them to see?

A. I did not and I have no reason to think they are not correct.

Q. I believe you said that your preparation for giving testimony as an expert accountant in this case consisted of keeping books for three years, with supervision of persons keeping books for a longer time. Did you make any erasures in your own books when a bookkeeper?

A. I expect so.

Mr. Pickle: I object to the assumption of the question as to the qualifications shown by the witness, as not correctly stating the facts which will appear in his evidence.

Q. If I have omitted to state any part of your qualifica-
2412 tions as an expert witness in accounts, I will ask you to do it in order that there may appear here a correct and just statement to you?

A. I have never claimed to be an expert bookkeeper under the full significance of the term.

Q. Do you, in interpreting any of the items I have been examining you about this morning discover fraudulent entries, or anything more than bookkeeping errors that are easily to be explained as such?

A. I have never attempted to make any interpretation of these entries, erasures or changes.

Q. I don't think that answers my question?

A. You asked me about my interpretations.

Q. I will now ask you to interpret them, or if you can do so?

A. As before stated I have never attempted to interpret these changes and erasures, or to charge that they were fraudulent, my opinion being that they were more in the nature of irregularities and covering after-thoughts in many instances, and of course am not able to say, to give the effect of the changes without much further investigation and assistance outside of the books.

Q. You say on page 12 of your deposition "I believe that those complete the glaring erasures that I have noticed in passing through the book. There are a good many others, but not of such importance or significance." I understand you to say now that there are none that you regard of any special importance or significance?

A. Yes sir.

Q. On page 13 of your deposition you were asked if you have mentioned all the books. Your reply is "All the books that were furnished me except the Pipe Construction Book. I also had some construction plans of buildings that were used by the contractor and mechanical witnesses, and had some vouchers". Didn't you have all the vouchers referred to or used in making the last or
2413 second book, or Treasurer's accounts at your disposal in your examination?

A. I don't recall now, but I don't think I had; I don't think the vouchers were used throughout that book—a part of that book was made up in the old way without vouchers. I had all the vouchers covering the Treasurer's new book.

Q. My question was if you didn't have all the vouchers referred to in making up that book?

A. I had all the vouchers referred to in the Treasurer's new books.

Q. And vouchers were used during the entire period that that book covers, were they not?

A. Yes, sir, and this book is made up from the results of vouchers.

Q. In regard to these books being books of original entry, when asked whether they are so or not, you say "No, sir, there is probably a part of the Cash parts of these various books that could be considered original entry, but as a whole, they are not books of original entry." In what respect do these books differ from books of original entry, and what more could be put into them to make them books of original entry. As an expert, inform the court how these books should have been kept so that you would consider them books of original entry?

A. My teaching and training of the definition of books of "original entry" are books upon which all the first records of transactions have been made.

Q. What would you call that book?

A. They are generally day books, check books, memorandum books and books of that character. A journal or ledger is never considered a book of original entry, and a book made up from vouchers would not be a book of original entry.

2414 Q. Was your training in single or double entry bookkeeping?

A. I have studied both.

Q. What does a set of books in double entry consist of?

A. Under the old double entry system they consisted mainly of a Journal and Ledger.

Q. Well, haven't you got a Journal and Ledger here?

A. In some instances we have.

Q. Haven't you in every instance?

A. No, we have the one book divided into departments which subserves the same purpose.

Q. If a Journal and Ledger having been kept separately for a while were rebound as one book—wouldn't change the fact that they were Journal and Ledger would it?

A. Oh, no.

Q. Well, haven't we got a Journal and Ledger in each instance here?

A. Yes, sir.

Q. Well, where is the difference in this and double entry bookkeeping?

A. I haven't said there was any.

Q. Well, if the Journal and Ledger of the ordinary double entry system are original entry, ar-n't these books of original entry?

A. I didn't say that either. I didn't say that the Journal and Ledger of the bookkeeping system were books of original entry.

Q. What is the first book ordinarily used in bookkeeping—the Cash book?

A. The day book, cash book and sales book; the books that the transactions are first recorded in are books of original entry.

Q. What is the difference between a day book and cash book?

A. Well, there might be a great deal of difference and there might not be any.

Q. They are books of the same grade, ar-n't they?

2415 A. Yes, sir, and practically the same ruling.

Q. Well, we have a cash book here, haven't we?
A. Yes, sir, several.
Q. And we have cash books through the entire period haven't we?
A. Yes, sir, but all of them are not such cash books as the original first cash entry was made upon. These books give the results of the original transactions, but not the original record of the same as it occurred.
Q. Did you examine to inquire whether or not the books of original entry were here?
A. Yes, sir.
Q. Did you find them?
A. They said they were not.
Q. Who said so?
A. Mr. Kimball.
Q. When did he say so?
A. When I was making the examination he said he thought a part of them were burned up.
Q. What part?
A. The old water company's books and papers in a fire somewhere up town; probably there were two fires.
Q. Ar-n't you thinking of the Lonsdale books?
A. No, sir, I am thinking of the old original water company's books before the Wheeler and Parks management.
Q. Didn't you find them all here?
A. No, sir, not the books of original entry, except the cash book—none of the original books.
Q. Do you mean to say that you were told that the books of original entry were not here?
A. That is the way I understood Mr. Kimball.
Q. Let's see if you can be positive about that?
A. Well, I asked him for the bills, papers and vouchers of the Knoxville Water Company and he said he understood that they were destroyed by a fire up on States street or some other street—
2416 Wall street I believe it was.
Q. Did the Knoxville Water Company ever have an office on Wall street?
A. I understood him to so state.
Q. Is there any record in these books to show that there was a fire in the office of the Knoxville Water Company?
A. I have never seen any such record, and have no record of the fires in Knoxville. I only know that I didn't get these old books of original entry and the bills and papers on which they were based. I would have liked to have seen the invoices of pipe too and compared them with the purchases, and many other things.
Q. You say you had some construction vouchers from 1889 to September 30th, 1902, that you had operating account vouchers, or a part of them from 1889 up to September, 1902. Didn't you have all the construction and operating vouchers from April 1st, 1900, to September 30th, 1902; if not state in detail what you did not have and why you did not have them?
A. I had considerable vouchers of both kinds during these terms,

but did not have the vouchers back to April 1st, 1900. I was informed by Mr. Kimball that the items of these earlier vouchers were set out in the annex part of Mr. Wheeler's book, which I supposed would answer the same purpose of the vouchers, and didn't make any further pursuit of these vouchers.

Q. They are set out there, are they not?

A. I suppose so; a great many items are set out there; this annex part of the book is made up in very full detail.

Q. Was there any account of payments on the Treasurer's books between April 1st, 1900, and September, 1902, not covered by vouchers furnished you, or explained at length in the book itself?

A. Most of the payments were evidenced by vouchers; there are some omitted.

2417 Q. Wern't they explained in the book itself?

A. Not fully; the details were not explained; these appertain mostly to franchise account and water rates litigation and some items of that character, and some other payments for which there were no vouchers.

Q. Is there any franchise account in that second book?

A. I think so; there may not be; it may be under some other name; perhaps it has been changed to water rates litigation; I don't recall.

Q. Now, didn't you find a voucher for every item of water rates litigation?

A. I don't think I did.

Q. Did you try to?

A. I investigated all the vouchers I had.

Q. Did you ask for any more?

A. I don't recall whether I did or not: I think the books indicated there were no vouchers—it gave no numbers.

Q. Can you give an item that has not a voucher to support it?

A. Yes, sir, I find the first item I turn to on page 22 in a payment to William Wheeler $43,000.00 for which there is no voucher; on page 22 notes payable $10,000.00, and dividend checks same page, $10,000.00. On page 23, notes payable $55,000.00; page 25, discount on consolidated bonds $4,687.50; page 25 debenture bonds $21,000.00, and in another item $26,000.00; page 27 $1,000.00, $4,000.00 and another item of $1,000.00; on page 29 notes payable $68,000.00, and $5,000.00, $10,000.00 and $5,000.00, and capital stock to Francis B. Aiken $2,300.00; to B. F. Hendrick $2,000.00; on page 31, capital stock, preferred certificates 'W. R. memo. $4,000.00;' page 33 William Wheeler account endorsement $74.68, W. H. Bowker account endorsement $38.23, E. Wheeler account endorsement $74.67; page 35 capital stock John D. Wild $2,000.00, dividend $55.67, and throughout the books a large amount

2418 of interest is paid for which there is no vouchers, and exchange items the same way, and discount the same way, and all the expenses paid on "W. R. Memo." is not supported by a voucher, and all payments to Mr. Elbert Wheeler as salary on percentage of water collections are not supported by voucher.

Q. My question referred to water rates litigation, but I don't

object to your putting these others in if you like. Are there any in water rates litigation that are not supported by a voucher?

A. I think there are, and I will go through the books and get them if you want me to.

Q. Well, I will ask you to show them?

A. (Witness here refers to the books:) Draft of Winthrop National Bank (page 49) August 8th, 1902, $200.00; Bank of the Republic $300.00 July 14th, 1902, found on page 51.

Q. Under what head is that last entry?

A. Expenses.

Q. I am not asking you about expenses, but under the head of water rates litigation?

A. I do not, but here is one.

Q. Well, what is it?

A. $455.00 to C. T. Cates, Jr., July 14th, 1902 (page 51) with no voucher. Then you don't want anything except under Water Rates litigation?

Q. No.

A. Well, here is Water Rates litigation; $14.50 December 8th, 1902, no voucher. Water Rates litigation, December 11th, 1902 (page 57), J. W. Caldwell $150.00, no voucher. Water Rates litigation William Wheeler $100.00, without date, page 57. Same page, without any date, account E. W. expenses $50.00. Page 59 after January the 10th, I suppose is the date, $150.00.

Mr. CALDWELL: I object to anything after the 1st of January of this year. This inquiry doesn't come down later than the 30th of last September (but meaning Sept., 1902).

2419 Q. Now, Mr. Nixon you have read a number of entries from the books where there are no vouchers given; how do you know there are no vouchers?

A. Because there is no vouchers given.

Q. Those entries all show what the payments were made for don't they?

A. Oh yes sir.

Q. Do you dispute the propriety of any of them?

A. Oh no I make no criticism of them. I was simply answering your question that the entries were not supported by vouchers.

Q. Now I will repeat the question, as your answer has gotten considerably away from it. Was there any account of payments on the Treasurer's books between April 1st 1900 and September 30th 1902 not covered by vouchers furnished you or explained at length in the book itself?

A. In the foregoing answer I have indicated some of the items not supported by a voucher——

Q. Have you indicated any not explained by the book itself?

A. —but these items of course are explained by the entries.

Q. When you were asked on page 15 of your deposition whether or not you were furnished with vouchers or original entry to verify the books for any of the rest of the period of the company's existence you said, "No sir: in fact these books showed very little construction—

these latter books particularly." Doesn't the Treasurer's account book, meaning by this the first one kept by Elbert Wheeler, either in the Cash or Journal, set out all payments in considerable detail for all the construction actually done by the company itself between January 1st, 1892 and March 31, 1900?

A. These books furnish considerable detail as to construc-
2420 tion by the company, but whether all the constuction was done directly by the company or not I am unable to say, but presume it is fully covered.

Q. You don't know of any construction done by the company that is not covered do you?

A. I am and was not able to thoroughly discriminate between the construction done by the company and that of its contractors as it was so intermingled and intermixed.

Q. But you don't know of any construction done by the company that is not covered by these entries in the Treasurer's book, do you?

A. No, I am not able to definitely and distinctly point out or separate this construction work.

Q. I didn't ask you if you were able to separate it. I asked you if you knew of any construction work done by the company that is not covered by these entries in the Treasurer's book?

A. I think my previous answer covers that and would add that I am not able to say as to whether it is all fully covered or not.

Q. When you were asked whether or not the books of the water company afforded the data upon which the cost of construction of the plant could be determined from the books themselves, your reply was that "it could not be done from the books furnished me." Didn't you get all the books?

A. Yes sir, but the books didn't cover all the construction.

Q. Then a construction account cannot be made up from the books can it?

A. Oh no, not for this plant completely.

Q. Then you agree with Mr. William Wheeler on that point?

A. I agree with everybody that you can't take books that don't cover things and make up costs from them when they are
2421 not in the books.

Q. Then how are you going to make up your statement of costs?

A. You have to supplement the books in a great many respects.

Q. How would you supplement them?

A. By taking the plans and getting the quantities, and a great many ways.

Q. What method did William Wheeler pursue; didn't he pursue the method you indicate?

A. No sir, as I understand he made an estimate from beginning to end.

Q. What was his estimate based on?

A. It was based, as I understand it on his ideas and information.

Q. Could you make a statement without its being also an estimate?

A. I think I could make part estimates and part fact.

Q. Didn't he make his part estimate and part fact?

A. No I understood his was all estimate.

Q. Didn't he say he had the plans, the measurements of the pipe, specifications and dimensions of the old original construction here, and everything of that sort?

A. I think he said he had some information of that character.

Q. And don't that constantly appear in his analysis?

A. I think he said so. He said so one time but whether he repeated it through his analysis I am unable to say.

Q. Didn't he have also knowledge and experience in these matters?

A. He said he had, but not in this country entirely.

Q. Hasn't he been the supervising engineer and practically in control of this property since 1893?

A. I presume so from indications. He has been drawing money out of it all that time.

2422 Q. Did you make an estimate and statement on your knowledge and information?

A. As far as possible; that is supplemented by such facts and figures as were obtainable and upon the information obtained from others and investigation that I made or was able to make, and results and conclusions that I reached.

Q. Yours was made exclusively on heresay testimony or on the statements of other people was it not?

A. Not entirely so; much of it was made on my own experience and much of it on my own facts and much of it on information obtained from various sources, hearsay and otherwise.

Q. You have referred repeatedly to your experience. What experience do you mean?

A. I mean experience in all these lines—in all this character of construction, and an acquaintance with the character of material and equipment going to make up a plant of this character.

Q. You say on page 16 of your deposition that the Lonsdale-Beaumont West Knoxville additions seems to have been built by contractors, by Messrs. Wheeler & Parks as constractors and Mr. William Wheeler as a contractor——

A. I don't think I said that did I?

Q. (Mr. Caldwell, reading.) "The North Knoxville extensions to the plant and the additions at the Pump station and Filter station, and the high pressure and pipe additions, and the Lonsdale-Beaumont West Knoxville additions seem to have all been done by contractors—by Messrs. Wheeler & Parks as contractors and Mr. William Wheeler as contractor—and the records of the contractors are not on the books."

A. Well I see it here, but that is a mistake as regards the Lonsdale-Beaumont. The Lonsdale-Beaumont construction was done by a contractor by the name of George W. Sturtevant.

2423 Q. There was no common or preferred stock paid for the Lonsdale work was there?

A. I don't know what was paid for it.

Q. I asked that question because it went in your deposition on page 16 that the only thing shown on the books is so much preferred and common stock paid for so much work?

A. This refers to work paid for to Wheeler & Parks done by them under their respective contracts.

Q. Now on page 16 of your deposition you say as to the amount of common and preferred stock issued to Wheeler & Parks in 1891 and 1892 on up that you don't recall the amounts, but something like $725,000.00, over $700,000.00 anyway. Isn't that a mistake?

A. In that answer I had in mind not only the stock but the cash that was paid them the stock paid them amounting to $685,000.00 and cash to about $55,000.00.

Q. Now kindly show me where that cash was paid to them?

A. If you will give me Mr. Elbert Wheeler's deposition I will figure it out. (Witness refers to deposition.) On page 47 (Vol. 2) of Mr. Elbert Wheeler's deposition he shows payments to Wheeler & Parks on these contracts,

1893-4	
1894-5	$22,784.17
1895-6	8,379.30
1896-7	6,678.89
	18,504.21
And in preferred stock	$56,346.57
And in common stock	295,000.00
Making grand total	390,000.00
	$741,346.57

Q. Now Mr. Nixon as a matter of fact don't you know that no cash at all was paid to Wheeler & Parks for their work?

A. I made up the account of Wheeler & Parks and of William Wheeler as their successor, and found that the cash payments amounted to within the neighborhood stated by Mr. William Wheeler, but I haven't my memoranda with the exact
2424 amount on it at this time.

Q. You mean I presume in the neighborhood of the amount stated by Mr. Elbert Wheeler?

A. Mr. Elbert Wheeler, yes sir.

Q. I will ask that you produce it?

A. Cash payments, ——

Q. Do you understand these statements on page 47 of Elbert Wheeler's deposition to mean that the items you have mentioned were actually paid in money to Wheeler & Parks and William Wheeler?

A. I understand it as he so states, and the books corroborate him practically.

Q. He says that in the fiscal year ending March 31st, 1894 $22,784.17 was paid in cash and $325,000.00 of stock in the company. Now see if he does not add this: "The latter item (that is the $325,000.00) to Wheeler & Parks and William Wheeler for the fiscal year ending March 31st, 1895, $8,379.30 was paid for in cash and $304,500.00 in stock." Doesn't that statement beginning with the words "the latter item to Wheeler & Parks and William Wheeler" show

that the $325,000.00 was paid him and $22,000.00 odd dollars to other persons and for other purposes?

A. I do not so understand it, and the best answer to the question is for me to quote Mr. Wheeler on pages 46 and 47 of his deposition (Vol. 2).

"Q. Now take your construction account as heretofore stated in your deposition for the years 1894-5 for $347,784.17 for 1894 and $312,879.30 for 1895. Were these items for construction by Wheeler & Parks under their contract of 1893?

A. Largely, but not altogether.

Q. Well how largely, about how much of it?

A. In the fiscal year ending March 31, 1894, $22,784.17 was paid for in cash and $325,000.00 in stock of the company, the
2425 latter item to Wheeler & Parks and William Wheeler. In the fiscal year ending March 31, 1895 $8,379.30 was paid for in cash and $304,500.00 in stock.

Q. How was it for the year 1896 for which there is a charge in your construction account of $52,768.89; what part if any of that was paid to Wheeler & Parks under that contract?

A. $6,768.89 was paid for in cash during the fiscal year ending March 31, 1896, and $46,000.00 in stock of the company.

Q. How with reference to the item of $28,004.00 for the year 1897?

A. $18,504.21 was paid in cash and $9,500.00 in stock of the company.

Q. How was it as to the item of $5,038.34 for the year 1898?

A. It was all paid in cash, as were all subsequent yearly additions to Construction Account."

Taking these statements just as they state it I computed the payments of cash and the payments of stock and reached the result heretofore set out.

Q. Now where on the books did you find any cash evidences of cash payments to Wheeler & Parks?

A. I went through Wheeler & Parks' account, also the account of William Wheeler as their successor and made up the totals of payments of cash and materials and other items charged them and the preferred and common stock, and found the cash payments to aggregate in the neighborhood of the amount given by Mr. Elbert Wheeler. I can furnish a copy of this statement of the account if desired.

Q. Well if that is your understanding of the meaning of the language you have read we will have to put the Treasurer on the stand to show how the fact is.

Q. In testifying, on page 19 of your deposition in regard to items that have entirely disappeared as shown in William Wheeler's
2426 deposition, you refer to "Tool and Storage House $186.40." How do you get that aggregate of $186.40?

A. I got it from Mr. Wheeler's statement.

Q. What page?

A. I refer to page 133.

Q. Well what do you find there?

A. I got it from page 133 in his codicil of depreciation, added

to page 166 in which it shows under column "3" $186.40, headed "complete or culminated depreciation."

Q. How about the chimney referred to on page 19 of your deposition at $2,388.74?

A. I found that on the same page, in the same column No. 3 under head of "complete or culminated depreciation, $2,388.74."

Q. What does it show there, anything except the bare statement of figures?

A. The heading of the column shows what I have stated.

Q. How about the "Coal Chute, $824.43?"

A. I found it on the same page and in the same column, No. 3, under the head of "complete or culminated depreciation."

Q. You say in your deposition it is on page 134?

A. That is my first reference.

Q. See what page 134 says about it?

A. Page 134 sets out the original total of Coal Chute, $543.31 and refers back to page 27, and then gives a history of its depreciation and replacement in 1895, less the salvage of old iron, $316.00, leaving a net depreciation on March 31, 1896, $227.31, but on the table where he makes the depreciation up to March 31, 1901, he gives it as $824.43.

Q. Do you know where the balance comes from in either one of these three items I have called for?

2427 A. That would be too much for me. He has calculated that and I have preferred to adopt his figures.

Q. Then you are not sure of these amounts except as you gather them from William Wheeler's deposition?

A. No sir I never would have known what the depreciation was if he hadn't shown it.

Q. Do you think then in view of your dependence upon Mr. Wheeler that you are competent to handle this question of depreciation?

A. I prefer to accept his amount on this part of the plant.

Q. Don't you prefer to accept his conclusions wherever the question of depreciation is referred to?

A. I believe I have; I think I have accepted both complete or culminated and for progressive depreciation.

Q. Now you say on page 21 that you have found that pipe was charged from $25.00 to $35.00 a ton when the market value was from $13.00 to $25.00. I wish you would give the stenographer the years and pages of William Wheeler's deposition where pipe has been charged from $25.00 to $35.00 per ton in all cases where you differ from him, and state the market prices for each of the years you mention when you say it was from $13.00 to $25.00 per ton?

A. I didn't reach my difference with him in that way, as Mr. Wheeler simply quoted his tonnage prices as incidents, but based his estimates entirely upon footage basis.

Q. Well you say here he charged that at so much a ton don't you?

A. Oh yes sir he based his footage prices I suppose on tonnage prices when it suited him.

Q. Whereabouts in his deposition does he show pipe charged at

from $25.00 to $35.00 a ton where the market price was from
2428 $13.00 to $35.00 a ton?

A. I will attach a statement showing prices charged, pages and quantities throughout.

Q. I don't care for the quantities. What I want is that you shall designate the years and the pages on William Wheeler's deposition where he has charged pipe at prices from $25.00 to $35.00, only in those cases where you differ from him, and I want along with that a statement of the market prices for each of the years you mention, as you say the market price was from $13.00 to $25.00 per ton?

A. Well as this answer would involve considerable labor I will endeavor to furnish it later. I arrived at my valuation by a different method.

Q. But you make the statement here in your deposition on page 21 as a comparison of prices per ton, do you not?

A. In this I refer to another period from the first construction to March 31st, 1901.

Q. Well that is precisely what we refer to and we ask for the information I have called for above.

A. It is as follows:

2429 Q. How does it appear on these books that F. M. Loweree was paid for his part in the construction?

A. The books show he was paid in cash for his services of construction of the original plant $1667 and some cents, is my recollection.

Q. You state in your deposition on page 24 that "he was paid a regular salary at the end of the week, and at the end of the term he was paid an amount when his services ended. He operated the plant some time after it was finished. Do the books show his salary run through the construction period? A. Yes sir, and they show payments of his salary nearly every week, and some times twice a week. Q. Do you remember the aggregate amount that was paid him in salary during the construction period? A. For the entire period $3,668 and some cents is my recollection."

Now I will ask you if you pretend to state that Loweree did not receive additional compensation for his services in the shape of stock, bonds or otherwise?

A. If he did, I don't think the books show it.

Q. Isn't it a fact that the allowance of $2,000.00 a year to Loweree was for his services to the company during the period in question, and in addition to his profits, &c. as a contractor was paid in stocks and otherwise?

A. I didn't make such disclosures from the books in my examination of the books.

Q. Didn't you find that in the depositions that you have been reading?

A. Yes sir I found the wages paid weekly, but I did not find any other payments.

Q. Have you found anywhere where he was paid in stock anything outside of his regular salary?

A. Not on the Loweree books.

Q. Well where did you find it?

A. I never said that I ever found it.

2430 Q. Well you said "not on the Loweree books" and I inferred from that you had found it somewhere else?

A. No sir, I didn't find it anywhere else.

Q. Didn't you find it in those depositions?

A. I don't remember that I did; I don't think I did.

Q. Don't you know that the contract with Loweree called for payment to him of stock and that there was no indication of it going anywhere else?

A. I have seen some statement of that kind in the records, either in this case or some other, but the contract does not appear to have been adhered to, as all the construction was done by the water company direct, or in its name.

Q. What does it provide in that respect—I mean as to the payments of stock to Loweree?

Mr. PICKLE: Well the contract will show for itself Mr. Caldwell.

The WITNESS: I would prefer to refer to the contract myself.

Q. Did you examine the stock book?

A. No sir I never saw any stock book.

Q. Did you ask for one?

A. I don't think I did; I didn't understand it was here.

Q. Did you read the depositions over, and didn't you see that the stock book was introduced repeatedly in the case?

A. No sir I did not. I noticed Mr. Wheeler testified from it but I didn't catch that it was produced.

Q. Did you see the statement in General Wheeler's deposition on page 29 showing the issuance to F. M. Loweree of 2,000 of stock.

A. I read Mr. Wheeler's statements regarding that stock in which he expressed some doubt, and finally made up what purported to be the first issuance of stock, which included passing some of it

2431 through Mr. Loweree.

Q. My question was if you read Mr. Wheeler's deposition on page 29 where it appears that Loweree got 2,000 shares of the stock?

A. Yes sir I read that part of his deposition.

Q. Have you any reason to doubt that he did get it?

A. I don't know anything about it. That is all the information on the subject that I remember the record discloses, and that is not very definite.

The further taking of depositions was adjourned until Wednesday Morning, October 21st, 1903, at 9:00 o'clock a. m.

2432 WEDNESDAY, *October* 21*st*, 1903—9:00 o'clock a. m.

The further cross-examination of *W. M. Nixon resumed.*

Examination by Mr. CALDWELL:

Q. Mr. Nixon on a former date, I asked you to show the charges for the year 1900 inserted with the entries of 1897 on the Treasurer's books. Have you looked that matter up yet?

A. No sir I hav'n't done that but will do so later on.

Q. I also asked you to look up the entries for the year 1897 inserted with the charged of the year 1900 on the books; have you looked that matter up yet?

A. No sir; I will do that also.

Q. On the day of the last examination I asked for a list of pipe charged at from $25.00 to $35.00 a ton when the market prices were from $13.00 to $25.00?

A. I will furnish that list later.

Q. You understand that that $25.00 to $35.00 charge that I refer to is per ton for pipe as it appears in William Wheeler's analysis?

A. I understand it to refer to pipe used in his estimate as of the various dates shown.

Q. On page 25 of your deposition in connection with payments made to Lawson Irwin, you say "He is charged with $1233.76 in cash and credited with the same amount on reservoir account, labor to Lawson Irwin $1167.75, and on page 18 reservoir account, debtor to Lawson Irwin to balance account, $66.01, the two making the amount of cash that he was paid". Now you state that Lawson Irwin is credited and reservoir charged with $1167.75 on page 20 of the old, or Loweree Ledger. Please turn to page "1" of that Loweree Ledger purporting to show "Reservoir Account, labor," and see if this item is carried into this account on page "1"?

2433 A. It is, under date of October 31, 1882.

Q. Now isn't it a fact that on page "1" other charges than Lawson Irwin's are shown to have gone into the cost of the Reservoir?

A. Oh yes sir.

Q. Are there on page "1" under "Reservoir Account, Labor" items aggregating $5,361.65?

A. Yes sir, which is carried to page 7 and merged in these other items aggregating $9,287.58.

Q. Now please turn to page 38 and see if the last aggregate you mention isn't brought forward and the account continued to January 12th, 1884, making to that date $12,139.23?

A. It is.

Q. Now please look to page 8, items October 10, 1882 to August 31, 1883 and see if credits deducted, there is not a balance to "Reservoir Account, material" of $4,072.56?

A. There is such a balance on Reservoir material account on page 8.

Q. Now please look to page 37 and see if the last amount named is not brought forward and the account continued to November 24, 1883, at which date it amounts to $7,532.63?

A. These amounts on the pages indicated show such accounts.

Q. Now please look to page 84 and see if the amount last named is not brought forward and the account continued to February 14, 1884, when your credits deducted, it amounts to $11,189.87?

A. Yes sir, there are such amounts on this account of Reservoir and material account, page 84.

Q. Now I will ask you to turn to the second, or so-called Martine Ledger, Reservoir Account to pages 42 and 43, examine the items from January 24, 1884 to July 25, 1885 with credits deducted, and say if we do not include the balances from pages 38 and 84 of
2434 the first Ledger just testified about by you amounting to $23,329.20?

A. There is such an amount carried into the Reservoir Account on page 43 of the Martine Ledger, the entry being in red ink.

Q. The total balance there then or amount of Reservoir Account up to that date, is $29,480.04, isn't it?

A. Yes sir.

Q. Now Please look to page 44 of that same Martine Ledger and see if the amount last named is not brought forward and the account continued to April 23, 1887, when with credits deducted it amounted to $30,300.38?

A. Yes sir the books show such amount.

Q. Now turn to page 230 and say whether or not the above amount of $30,300.38 was not closed into the betterment account under date of August 1, 1890 without however any entries after April 23, 1887?

A. The betterment account on page 230 starts out with various charges in pencil, among which is Reservoir $30,300.38.

Q. Well that is a proper aggregate of these items I have been asking you about, isn't it?

A. It is the balance from that account.

Q. Each item that I have asked you about is properly referenced to Cash book and Journal, isn't it?

A. Yes sir I was able to trace them through by those references.

Q. How much have you allowed on that reservoir?

A. As the cost of the reservoir?

Q. Yes sir, in your deposition I mean?

A. I stated there was an overcharge of $20,000.00 in a former answer.

Q. Now do you mean there was an overcharge of $20,-
2435 000.00 in William Wheeler's deposition or in the books?

A. In William Wheeler's estimate—his estimated cost.

Q. Don't the books show that it has cost upwards of $30,000.00?

A. That construction could be obtained by the books; they also show that it cost $10,106.51 during the construction period.

Q. You say that that construction, towit; that it cost $30,000.00 and upwards could be obtained from the books. Doesn't the fact that it cost that amount clearly appear from the books?

A. No sir it does not.

Q. Well what do these items refer to that you have been examined about?

A. Well they seem to include a great deal of operating expense, &c.

Q. Well point out what the operating expense is?

A. In the first place, the first Reservoir Charges had everything charged to "Reservoir Account" that went to the Reservoir; any kind of wages, or any kind of labor or any kind of expense incident to the Reservoir. Afterwards, some bookkeeper changed it to "maintenance" and further along it got into "betterments".

Q. Well now I want you to point out the items that went into this account that you say are operating expenses?

A. I made my estimate however independently of the cost of the reservoir, taking the materials like Mr. Wheeler did, or like Mr. Ludlow made his estimate.

Q. Withdrawing for the moment the question calling upon you for the items of operating expenses, I will ask you if you mean to say that out of this $30,300.38, $20,000.00 was operating expense?

A. No sir, I mean to say that $20,000.00 was stuffing or overcharges, packing or something of that kind. It couldn't
2436 have been a legitimate cost, as the reservoir couldn't have cost that amount of money.

Q. Well as you say it is "packing" I must ask you to give to the stenographer the items of "packing", understanding that you mean thereby improper and illegitimate charges?

A. By "packing" I mean excess charges, or valuations, and should say that from one-half to two-thirds of the amount charged on this account are excess charges, or overcharges or improper charges. By no method of reasoning or calculations could the reservoir have cost thirty odd thousand dollars.

Q. Now do you mean that the book account is packed and padded, or that Mr. Wheeler's estimate is packed?

A. I mean that the book accounts are improperly kept and charges improperly made as far as the book account is concerned, and I mean that Mr. Wheeler's estimate is excessive.

Q. You said awhile ago that a great deal of this $30,000.00 account was operating expense; now you say a great deal of it is padding. What do you say now is the cost of the excess over your estimate of $10,000.00?

A. Well these assumptions are based upon both padding and excess charges and improper charges.

Q. By improper charges, do you mean the same thing as you mean by "padding"?

A. Yes sir.

Q. Did you transcribe this account into your note books?

A. Some of it, the results I did.

Q. Can you say how much of the difference between $10,000.00 and $30,000.00 is operating expenses and how much is improper charges?

A. No sir, not without going over the account again.

COMMISSIONER: By padding or improper charges, do you mean corruption, or items that belong to some other account?

2437 The WITNESS: Oh I mean incompetent bookkeeping—improper charges—charging things to Reservoir that ought not to have been.

COMMISSIONER: Then your theory is they should have been charged to some other account?

A. Yes sir.

COMMISSIONER: And not that it was padded to steal money or anything of that kind?

A. Oh no sir.

Q. Well the whole $30,000.00 was spent for something, wasn't it?

A. I don't know whether it was or not; I couldn't say.

Q. Well if it was not then these books have been kept in a dishonest way as well as an improper way, haven't they?

A. Not necessarily.

Q. Don't the books show that the whole $30,000.00 was spent for something?

A. This is a very long account and involves a very great amount of entries, charges, counter-charges and transfers, including materials, labor and purchases, and indicates that this account is considerably mixed up. The original construction books furnish a statement that this reservoir cost $10,106.51, and the quantities correctly figured to date show about the same amount, or a little less.

Q. Doesn't the ledger show that the labor and materials alone amounted to $23,329.20?

A. It does at one period.

Q. At what period?

A. When these red ink entries were made.

Q. Well what date is that?

A. They are of various dates; they seem to be in the year 1884.

Q. When did the building of the water works commence?

A. In 1882 I think; at least there are charges on here in
2438 1882—the latter part of 1882.

Q. Then the books show that down to 1884, sometime in that year, labor and material had cost $23,329.20, don't it?

A. It shows that that much had been charged to that account.

Q. Now when you reduced this Reservoir Account to $10,000.00, you did it upon accurate knowledge of the account, didn't you?

A. Oh yes, the account and several other things that would enter into the cost of the reservoir.

Q. You didn't undertake to take out items on general principles, did you? without knowing what the items were?

A. Oh no, I endeavored to secure accurate information on the items, but when the fact was apparent on the books that this excavation only aggregated 10,000 yards and that 12½ cents per yard was paid for it and estimates, charging for 16,000 yards at 50 cents per yard, was so glaringly inconsistent that I was compelled to adhere to facts and practical conditions instead of inflated estimates.

Q. Now upon what information did you proceed when you cut the account down to $10,000.00?

A. Upon the first information that the two reservoirs were 182 feet long, 106 feet wide and 17 feet and 8 inches deep respectively,

and that the top of the partition wall was 10 feet wide and the top of the outside wall was 12 feet wide, and that the slope of the embankments about 4 to 3 on the outside and 3 to 3 on the inside, and calculating the mean width and mean length and actual depth, and allowing for the embankment that would not be disturbed, the excavation indicated was all the way from 9,862 yards to 10,447 yards, and the fact that Lawson Irwin did the excavation, 19 feet 6 inches deep, and swears he was paid 12½ cents a yard for it, and
that the books show that he was paid about $1233.00 for the
2439 job, which would corroborate the measurement of 10,000
yards, and corroborate the calculation of the fill around the reservoir, the number of cubic yards contained therein; the calculations of the measurement of the bottom and slopes by three different men in addition to myself shows the same at 5,110 yards, one's calculation being 5,110 yards, another one 5,109, another one 5,110 and the other one 5,111 yards, and figuring the cost of puddling or either concrete or brick pavement or the concrete along at $1.00 a yard, it was thus arrived at, and from other reliable sources; I figured one-third of the surface or 1,600 yards, one foot thick at 75 cents, 5,100 square yards additional paving or concrete at $1.00, the frog guard fence at $105.00, and allow for repair of bottom for negligence and bad construction $2,045.00, making the following summary:

10,000 yards excavation at 12½ cents	$1250.00
1,600 " one ft. thick of concrete or puddlings at 75 cts.	1200.00
5,100 yards paving or concrete at $1.00	5100.00
Wire fence, frog guard	105.00
For repair of bottom from bad construction, say	2500.00
Total	$10255.00

which corroborates my investigation of other work of this character and Mr. Getaz, who has already testified in this case, has reached the cost of this reservoir by similar methods as $9,392.15.

Q. Now what do you take off the balance for; please state by items.

A. I don't take off; I commence at the bottom and build up, and there is about twenty odd thousand dollars difference between me and Mr. William Wheeler's estimate.

Q. What was that spent for?

A. I don't know whether it was spent at all or not; I don't know that it was spent.

2440 Q. What do the books show it was spent for?

A. I wouldn't undertake to say. The books have numerous and sundry charges against reservoir account, reservoir material, reservoir labor, &c.—that is, these various books do. The original construction books, as far as I was able to trace, indicated that this reservoir had cost within the neighborhood of $10,000.00.

Q. Don't the original books show $23,000.00 and more?

A. The original books show a great many things.

Q. I ask you if they don't show this reservoir cost $23,000.00 and more?

A. They show that amount charged to it for rock-crusher, reservoir material, reservoir labor and reservoir other things by which they reach an aggregate of twenty odd thousand dollars.

Q. Now when you cut the account down, were you actuated by a distrust or disapproval of the books, or were you going on your knowledge and experience without reference to what the books showed?

A. I was acting on both.

Q. But in so far as you acted upon a distruct of the books, you were bound to know the particular items which you distrusted, were you not?

A. No, I didn't take the time to filter those items out as it required a great deal of labor. I knew from my practical experience and from the cost of reservoirs of same capacity and requiring about the same amount of work in construction, that this reservoir could not have cost the amount of the estimate.

Q. Well was that the sole reason why you cut the amount down to $10,000.00?

A. That was one reason, and also from a statement from the construction books that the reservoir had only cost $10,106.51.

2441 Q. But the books show $23,000.00 don't they?

A. Yes sir the marshalling of all these various accounts on the construction books reach an amount of $23,000.00.

Q. And that is all on this one construction book, isn't it?

A. Yes sir I think it is.

Q. Now the practical experience you have had consisted in building two reservoirs 80 by 50 feet, cut out of solid rock at the State Penitentiary, didn't it?

A. That was my actual experience in the reservoir work of which I had charge, but I knew what excavation would cost and puddling, concrete and brick paving, and from this knowledge and experience was thoroughly convinced that this reservoir couldn't have cost any such figure as thirty odd thousand dollars.

Q. My question was whether or not your practical experience consisted in building those two reservoirs at Nashville?

A. My practical experience in reservoir building was limited to these reservoirs, but I have had experience in handling dirt and doing concrete work in other lines which is similar to reservoir construction. The construction of the reservoir here referred to is a very simple matter.

Q. Mr. Nixon how much did you take out of the book account on account of the improper entries in the books?

A. I didn't do any taking out; I simply commenced at the bottom and built up the reservoir.

Q. Then I understand you finally that you were not influenced in any degree by a study of this reservoir account in the books?

A. Except the patent fact to me that it was not correct.

Q. And what made that fact so patent to you?

A. There was too much money cost in it—more than the reservoir had cost.

2442 Q. You knew that from your experience, observation and inquiry did you?

A. Yes sir, and by making figures on it after ascertaining the measurements, and getting figures made by others.

Q. Then I understand you correct the books as to this account by your observation and experience?

A. I disregarded the books as to this account in comparing the cost of this reservoir with the estimated cost used in securing the total estimated cost of the plant.

Q. Then you did not analyze and correct the account of Reservoir Construction as it appears in the books?

A. Oh no that would have been an eternal job, particularly when the charges were not supported by any bills or explanations.

Q. In your examination in chief on page 133 you were asked if in making estimates of the cost of construction you did not use the actual cost as shown by the books of the company, which had been consulted by you, as well as other means of information, and also whether actual cost is as good or a better rule for making estimates than a mere estimated cost, to which you answer "In all my investigations I have endeavored to use actual cost and facts, and direct information rather than estimates, estimates being exceedingly variable and subject to so many conditions that I do not regard them as reliable as facts and costs, and could recite many instances to demonstrate the coundness of my opinion on this question." Does not that criticism of the making of this apply to the one you have been saying you made as to the reservoir?

A. It certainly does not; I could not have considered the charges on the books to this account in any sense facts, when I knew from my own experience that they could not be true.

Q. You say in the answer that I have just read to you that
2443 estimates are exceedingly variable and subject to so many conditions that you do not regard them as reliable as facts?

A. The best fact sustaining me in this position is the one with reference to this plant where the superintendent testifies that 8,000 feet of pipe costing $4,900.00 to buy it and lay it in the ground, yet when applying it to Mr. Wheeler's estimate the same items would reach some $8,600.00, which show that facts and estimates do not jingle.

Q. Where does that discrepancy in the cost of buying and laying pipe occur, and where will we find it in this record?

A. Mr. Martine refers to it in his deposition where he is asked the cost of 8,000 feet of pipe laid in the 9th or 10th ward of this City, and he gives the items and the cost at $4,900.00 when in figuring the same pipe and the same items in the prices used by Mr. Wheeler in his estimate, would produce a cost of $8,619.00 is my recollection.

Q. And the superiority of the method of estimation based upon knowledge and experience is also demonstrated by your ascertaining this cost here of the reservoir at $10,000.00 as against the book cost of $30,000.00?

A. Yes sir, I think my method based on facts and experience, and what is, and has been done in this country, is more correct than the large combination of charges against this account.

Q. You find the initial construction cost of this plant at $110,000.00, I believe?

A. From $110,000.00 to $112,000.00.

Q. Where did you get those figures?

A. From the original construction books.

Q. Why didn't you adopt the estimation there based upon your knowledge and experience?

A. Because it was impossible to secure the necessary data
2444 to recalculate the cost of all the work, and it was easier to ascertain the amount of money that had gone into the original construction.

Q. Now have you got a statement of the items making up that $110,000.00 or $112,000.00?

A. Yes sir I will be glad to give it to you.

Q. Give it to the stenographer please?

"Statement of Cost of Original Construction from Trial Balance from the Books of the Knoxville Water Company, F. M. Loweree, Construction 1882-1883.

Pump Station,	$28,032.60
Reservoir,	10,106.51
Street mains and Pipe System,	46,932.57
Service Material,	3,269.66
Force Main,	6,555.18
Engineering,	1,856.50
General Construction,	6,051.20
Contractor,	1,667.75
Real Estate and Plans,	7,800.00
Total	$112,271.97

against balance of accounts,

G. W. Ballou & Company,	$76,328.33
Geo. P. Sheldon,	32,416.49
Sundry other accounts,	3,527.15
Total as above,	$112,271.97

Q. What amount do you allow for Reservoir material in this table of construction cost?

A. I have no material.

Q. Why?

A. Because the cement, sand and concrete that goes into it to make up the yardage charge, I have used in my statement I know of no material around the reservoir except pipes leading into and out of the same, which are included in the pipe system.

2445 Q. Why did you pay no attention to reservoir construction account for material in the book?

A. I paid the same attention to it that I did the account on the books for reservoir labor, and reservoir construction, which are simply sub-divisions of the same account and reach the same end.

Q. Well you knew that the reservoir construction account as shown by the books amounted to $30,300.38?

A. Oh yes I knew that amount was charged on the books to that account.

Q. Now what became of the $20,000.00, a part of which you say is operating expenses and a part improper charges?

A. I assumed that they were operating expenses and improper charges was the only way I could account for such a discrepency.

Q. I didn't ask you that; I asked you what became of that $20000?

A. It was carried forward from book to book until it now appears in the company's present estimate of $1,500,000 as the cost of this plant.

Q. Now what disposition did you make of it?

A. None whatever; I didn't handle it at all.

Q. Then do you mean to say that you knew a part of this was operating expense and you made this company no allowance for it anywhere?

A. I had nothing to do with operating expenses in those years; I didn't investigate the operating expenses for those years for improper charges.

Q. Have you said nothing about operating expenses in this deposition you have given?

A. For those years?

Q. Yes sir?

A. Except in a statement I have filed with my deposition
2446 showing the amount of operating expenses charged on the books which I have accepted and compared the same with the income during the same years.

Q. Now if in this rejected $20,000.00 charged to Reservoir Construction there was an element of operating expense, you must have known, didn't you, that your statement of operating expenses as filed by you was incorrect?

A. Oh no.

Q. Well it is incorrect, isn't it?

A. It is not; my operating expenses are simply the operating expenses shown by the books of the company.

Q. Well you put that in as a part of your deposition in this case, hav'n't you?

A. Oh no, not yet; I have sworn to no statement of operating expenses over those years.

Q. Well you put in a total of operating expenses from a certain period up to a certain year, hav'n't you?

A. No sir; I am to attach a statement of that character but it will simply show the results as the books have it. I hav'n't investigated them as to their correctness, or as to the propriety of the charges, or their distribution.

Q. In your examination in chief on page 152 you answer "I have

made such an investigation of the books of the company for the period beginning at the commencement of operations up to December 31st, 1891, which shows that the gross receipts amounted, during that term to $209,562.00 and the operating expenses to $110,170.00 and being aware of this condition, I allowed no amount to cover "going concern" in making my statement of replacement." Now I ask you if you have not said this morning that a part of the difference between the $10,000.00 that you allowed for constructing the reservoir, and the $30,000.00 that the books show for con-
2447 structing the reservoir consisted of operating expenses, and I ask you also if it is not a fact that you have put in this statement of $110,170.00 as operating expenses in your answer on page 152, without making any allowance for the elements of operating expenses you have testified to this morning?

A. It is true that I have made sufficient investigation of the books to check off the receipts and earnings from the year 1883-4 to December 31st, 1891, and ascertained that the same was $209,562.00, and that the operating expenses, as shown by the books, in the aggregate, during the same time is $110,170.00, and that I did not investigate these expenses as to their proper distribution, or to decide or question whether or not they were properly charged to operating expenses, but accepted the same from the books as shown, and in the matter of the discrepancy between the reasonable or practical cost of the reservoir and the amount charged on the reservoir account on the books, I assume that a mixture with operating expenses and other mixtures and improper charges would no doubt account for a part at least of this discrepancy. In taking off the statement of operating expenses above referred to, amounting to $110,170.00 I did not attempt to make any corrections or recast, or redistribution of the accounts from the books, but simply accepted the amounts shown.

Q. You have testified, have you not, that there is an element of operating expenses in this discrepancy between your reservoir construction account and the book construction account?

A. I have stated that this was my assumption.

Q. Are we not entitled to have that amount of operating expenses included in the account of operating expenses that you have put in, in your deposition?

A. I should ask for what purpose?

2448 Q. For the same purpose that you have put in the $110,-170.00, simply to show that it is an operating expense?

A. No I don't think I was called upon to recast, repost and rewrite the books in order to reach a result that supports my assumption. I preferred for this purpose to accept the showing of the books, as they appeared to have been pretty thoroughly gone over before carrying the balances forward into the new books of the present management.

Q. Why did you say that the operating expense from the beginning to December 31, 1891 amounted to $110,170.00?

A. Because the books showed the same at $106,170.00, legal expenses $3,000.00 and personal injury $1,000.00, I believe, which two items I added to operating expenses making $110,170.00 instead of $106,170.00.

Q. You have stated that the amount $110,170.00 as being in fact the full amount of operating expenses of this company for the period indicated, havn't you?

A. I stated that the books showed this amount after making these additions.

Q. Well did you adopt the amount as correct?

A. For the purposes indicated, I did.

Q. What purposes?

A. For the purpose of showing that the Water Company was a "going concern" during its initial period of operation.

Q. Now why didn't you put in there the amount of operating expenses included in this $20,000.00 item in the Reservoir Construction Account?

A. Because the company hadn't done so.

Q. Did you know that there was that additional operating expense not shown in this $110,170.00?

A. I didn't know it positively; I believed it however.

2449 Q. Why didn't you put it in here?

A. Because it was not necessary.

Q. Why wasn't it necessary?

A. Because the books kept by the company and this amount as made up and carried into the books of the new management, I suppose was endorsed by the company, and I accepted its correctness.

Q. But you knew it was incorrect, didn't you?

A. I didn't know it positively; I didn't have very much confidence in it.

Q. Did you think it was incorrect?

A. I didn't know and didn't care.

Q. *Q.* Do you mean to say that you put in a statement here not caring whether it was correct or not?

A. My object was to get the result from what the books showed.

Q. Let me read you a question you were asked, "Have you made up a statement showing the operation of this plant for the first few years of its existence, and if so, state whether or not the income was sufficient during those years to give it a fair return upon the cost of the plant." Now your answer does refer to the books, but I ask you if you didn't put in that answer for the purpose of showing whether or not the income was sufficient during those years to give it a fair return upon the cost of the plant; in other words did you mean to answer the question asked by counsel for the defendant?

A. I would repeat this answer now as completely answering your question, I would think.

Q. Just as you like about that?

A. My surmises as to the correctness of the books were not then under consideration; I was only answering as to what the

2450 books showed as to the earnings or income and the operating expenses for the term indicated.

Q. That $110,000.00 doesn't represent the total operating expenses for the period which it covers, does it?

A. The book says it does.

Q. I ask you whether or not it is a fact that it does?

A. That would depend upon a thorough investigation and recast of the books, if that were possible.

Q. Then you have testified as to operating expenses without a thorough investigation of the books?

A. Oh yes I have testified what the books show as to earnings or income and operating expenses for the term about which I was asked without endorsing or condemning the correctness of the books—the term referred to being from the commencement of operations in 1883-4 to December 31, 1891.

Q. Isn't it a fact that during that term all expenditures of this company were necessarily either for construction or for operating expenses?

A. I should not think so, as the largest amount charged on the account appears to have been to interest, being $115,349.50 during this term for discount on securities and interest on the same, and on loans.

Q. What would you charge that to; what account?

A. I made no charge of this account.

Q. Well what would you charge it to in order to make a proper charge?

A. In all my investigations and reports of the water company I have disregarded interest account and paid no attention to it.

Q. As a matter of proper bookkeeping, how should it be charged?

A. That would depend upon whether the items making up the account were proper or improper.

2451 Q. Assuming that they were proper, to what account would you charge them?

A. If they were entirely proper and legitimate charges for interest incurred incident to operation of the business such an account would be properly carried into Expense Account, but this account covers a great many things that are not properly operating expenses, being discounts on securities, interest on securities and interest on large amounts of outside loans, and items of large amounts charged to interest account, and credited on the accounts to promoters or financiers of the company, which certainly could not be properly considered legitimate operating expenses in this instance.

Mr. CALDWELL: We object to that part of the answer which undertakes to settle the law of the case as to the propriety of making these allowances under one head or the other.

Objection over-ruled. Exception taken.

Q. Now what do you mean by "Expense Account?"

A. An account of operating expenses.

Q. How are these interest items charged in the books; I mean to what account?

A. To interest account.

Q. To operating expenses?

A. No sir they stand charged to interest account and have been carried forward to the new books to interest account, is my recollection.

Q. But I understand you that if they were proper interest charges, they should be charged as operating expenses?

A. I said they should, in my opinion.

Q. I understand that you have disregarded this whole item of $115,349.50 entirely?

A. In showing the income and operating expenses of the
2452 company for the term indicated, I did.

Q. Did you reject it in ascertaining the construction cost?

A. No I had no use for it in ascertaining construction cost or replacement cost.

Q. How much of it is a proper charge to operating expenses?

A. I couldn't give you definite figures without going through the account, but the impression made upon me during the investigation was that a very small amount was a proper or legitimate operating expense account.

Q. Did you allow any operating expenses of the small part of it which was legitimate?

A. No sir I disregarded the interest account entirely, using only the amount shown by the company as operating expenses with the additions I have heretofore indicated for legal expenses and personal injury.

Q. If a part of it was legitimate operating expenses, why didn't you put it in?

A. Because in that instance I wasn't reviewing the books for the purpose of challenging their correctness but accepted the earnings and income as shown and the operating expenses as charged by the company, and shown upon the books.

Q. Well now isn't the whole of this $115,000.00 interest charged to operating expenses in the books?

A. No sir, in the closing entry, carrying the business to the books of the new management, it is charged to Profit and Loss.

Q. Will you say that that is not an operating expense item, profit and loss?

A. I don't regard it as an operating expense item; it is an account that shows results at the end of the term.

Q. Then as I understand you $110,170.00 is not the true
2453 amount of operating expenses from the beginning to December 31, 1891?

A. It is, as the books show.

Q. I asked you whether or not it is the actual true amount of the money expended in operating expenses from the beginning to December 31, 1891?

A. That would be a matter of opinion; for me to verify my opinion in that regard would require re-writing or re-posting the entire books making the distribution of the expenditures in conformity with my ideas.

Q. Then you don't know whether it is the actual amount or not?

A. I don't pretend to know; I simply know it is the amount as shown by the books.

Q. I asked you whether you did not — it was the actual amount or not?

A. I know it is the amount as shown by the books.

Q. Is that all the answer you are willing to give me to that question?

A. Why I would say further than this I couldn't say, without an investigation or a recast or reposting of the books and I might not reach it then; there might not be sufficient explanations to enable me to properly distribute the expenditures.

Q. Then I ask you if it is not a fact that you are ignorant of the actual amount of money expended for operations from the beginning to December 31, 1891, and I don't ask for what the books show, but the actual amount?

A. Of course I don't pretend to know anything about the actual facts of the operations of this company further than derived from the books; there might have been large amounts of money diverted or used for outside purposes that I don't know anything about.

2454 Q. Now I will ask you whether or not you have examined these books and can state positively upon your examination of the books, without regard to the headings under which different expenses are entered, this $110,000.00 is the actual gross expenditure for the operations for the period indicated?

A. The headings are there and it is not necessary for me to trace out the amounts otherwise, but I suppose I could have done it if it had been necessary and found the amount, but it is there shown on the books in such a plain manner that "he who runs may read."

Q. I will ask the stenographer to read you the last question?

(Question repeated.)

A. I do not pretend and have not pretended to review or challenge the correctness of the amount shown by the books as the gross amount of operating expenses, and have adopted same for the purpose of the inquiry heretofore made; of course I cannot say whether the books are correct or not or whether they show the correct amount of operating expenses.

Q. You stated the amount of operating expenses at $110,170.00 for the purpose of showing that the company had made sufficient earnings on its investment, didn't you?

A. I did not.

Q. For what purpose did you state it?

A. For the purpose of showing that the company during its initial period of operation had an excess or su-plus of nearly $100,000.00 from its earnings or receipts in excess of its expenses for operation as shown by the books, and was therefore a "going concern" during its initial period, and therefore no per cent. should be properly added to cost of replacement of the plant to cover interest on capital necessary to carry the operations of the company until it should pay its way or become a "going concern" the books showing that the concern "went" or was "going" from the outset.

2455 Q. If the operating expenses exceeded $110,000.00, your answer was misleading, was it not?

A. It might have been.

Q. Well wasn't it misleading?

A. I think not; my answer was as to what the books showed.

Q. Were you asked about the books?

A. I was asked about the books; if I had investigated the books.

Q. I wish you would read that question, or I will read the question to you, "Have you made up a statement showing the operation

of this plant for the first few years of its existence, and if so state whether or not the income was sufficient during those years to give it a fair return upon the cost of the plant?" See if that is not the question?

A. That is the question and I understood it to refer to the books and so answered it from the books as an investigation of the books; I certainly didn't investigate outside.

Q. Do you think that an "investigation of the books" implies nothing but an investigation of particular items, or of the whole of the books?

A. That would depend upon what the investigation was made for.

Q. Could you swear that you had investigated the books of this company when you had omitted to investigate any part of them?

A. I could swear that I investigated that portion or part that I reported upon as having investigated.

Q. Have you ever investigated the whole of the books?

A. Not thoroughly and in detail, but I have gone through the entire books in a general cursory way. I assume you refer to books of construction and initial operation period.

2456 Q. How did you go through the interest items?

A. I went through this account pretty closely, investigating each charge and credit as closely as the books would disclose, having also a statement made up by Mr. Elbert Wheeler of this account.

Q. Did you take off a statement of the amount charged under that head—that is proper operating expenses?

A. I made no change of the operating expenses as charged by the company.

Q. I asked you if in examining the interest account you took off a statement of those items in it which are properly chargeable operating expenses?

A. I did not; I was not investigating interest account for that purpose at the time; I simply investigated the interest account to ascertain the charges it embraced, and for what purpose, if possible.

Q. Each interest item is charged on the book, isn't it?

A. Yes sir, in the same manner.

Q. As you read those items over, could you not determine which of them were properly chargeable to operating expenses?

A. I might and I might not; it would depend upon a recast of the books and the method to be adopted.

Q. Then you have not made a sufficient examination for that purpose?

A. No sir I have not attempted to do so.

Q. If there is an item under the head of "interest" that is a proper operating expense, is not the company as much entitled to that in its operating expense account as if charged under the express head of "Operating Expenses?"

A. I suppose it would be.

Q. Don't you know that it would be?

2457 A. No sir, in this instance this interest account covers a multitude of things and is mixed up with a great many transactions that would, in my opinion, make it necessary to adopt

a complete plan or system before it would be possible to reapportion the charges on that account.

Q. Wer-n't you called into this case for the express purpose of going through these books and reaching correct results?

A. That is my understanding and that has been my endeavor.

Q. And yet you don't undertake to state the actual amount of operating expense, do you?

A. Not in the instance you refer to, being the initial period. I did investigate and undertook to fix and ascertain the correct amount of operating expenses for the years 1899, 1900 and 1901 and made a detailed report on the years covered by that investigation.

Q. Do you wish the court to understand then that the $110,170.00 operating expenses from the beginning to December 31, 1891 is or is not a statement of the actual amount of operating expenses for that period?

A. It is a statement of the operating expenses for that period shown by the books, as reported by the company, and appears to have been sufficient as compared with the expenses of succeeding years.

Q. Is it the actual amount?

A. It would run from $10,000.00 to $18,000.00 a year as my statement referred to shows.

Q. I asked you if it is the actual amount?

A. It is the actual amount shown.

Q. I ask you if it is the actual amount appearing from all the entries under all headings on the books as properly operating expenses?

A. It is.

2458 Q. Do you say then that $110,170.00 includes a portion of the interest account—that is operating expenses properly?

A. As I understand, it includes no interest.

Q. Then how do you reconcile your last two answers?

A. Without any difficulty, as the matter appears quite plain to me.

Q. By what method or process do you reconcile them?

A. By a cool consideration of the facts, as shown by the books.

Q. Do you consider that as answering my question?

A. I do; if it does not I will be pleased to elaborate.

Q. Well I would be glad to have you elaborate?

A. I have heretofore stated that the income and operating expenses named or reported was that shown by the books, and whether correct or not I made no attempt to decide. The books showed in the matter of interest account that it is carried in a separate and distinct account, and is not mixed or mingled with the operating expense account. If I should indulge in a theory I should say that if the stockholders of the company had paid in their stock at its inception to cover cost of construction that it would have had no interest account.

Q. Is that the reason why you rejected the interest account entirely?

A. No sir I made no change from the methods shown by the books, as I was simply reporting what the books showed.

Q. Mr. Nixon you have rejected items in the Construction Account hav-n't you?

A. In what construction account, and for what purpose?

Q. The one I have been examining you about this morning?

A. If you mean in making up cost of replacement or actual or practical cost of a part of the work that I have disregarded or not been governed by some charges on the books, I might say that
2459 I have disregarded and not been governed by the same.

Q. That was where the company took improper credits to itself?

Mr. PICKLE: You are speaking about construction account?

Mr. CALDWELL: Yes sir.

A. Will you kindly explain what you mean by "improper credits?"

Q. I mean as you have defined it heretofore in this deposition here this morning?

A. I don't recall having passed upon any credits that the company has taken.

Q. I am not asking you about that—I mean the items that you rejected were those containing excessive charges as I understand you?

A. Yes sir I have rejected what I have regarded as excessive or impractical charges when endeavoring to reach the practical cost of a part of the work, as in the instance of a part of the reservoir to which I presume you refer.

Q. Now Mr. Nixon when you come to examine the construction account and found in it items of operating expenses that operated exactly the reverse as to what these rejected items did, why didn't you allow those to the company; why wasn't it as fair to give the company the benefit of charges that were improperly against it as to hold it to charges improperly for it?

A. I have never said that I encountered such charges, but only assumed that such mixture or mingle of the charges might account for the excessive amounts shown.

Q. You have testified on page 29 of your deposition that A. J. Hood and brother were charged and pump station labor credited with $1,809.10; you also stated that this labor appears to cover 1475 yards of rock excavation at $1.10, and 78 yards earth excavation at 30 cents and $163.20 on suction tunnel, making a total of $1,809.10.

Now please designate on these books the pages on which you
2460 say these specific items occur?

A. The best answer to this question would be to file or insert a statement of this account from page 18 of the book.

Q. No that wouldn't answer my question at all; I want to know at what page on the book you found the items that you mention in your deposition?

A. On page 18 are charges amounting to $1,809.10, and on page 7 of the Journal is a charge to pump station labor, credit to A. J. Hood and brother of $925.43, and on page 12 is another entry, pump station labor to A. J. Hood and brother, $653.62, and on page 18

of the Journal is an entry, pump station account debtor to A. J. Hood and brother to balance account $229.05, which credits are properly carried to Ledger account of A. J. Hood and brother on page 18 and amount to $1,809.10, the same as the amount charged, which I stated appeared to cover the 1475 yards of rock excavation and the 78 yards earth excavation, as Mr. Claud Hood has testified his father did this work, and he told me in addition that he worked with him when he was a boy and the prices that he states as being paid for the work, corroborates and supports this conclusion.

Q. Now where did you get your 1475 yards of rock excavation at $1.10?

A. There are 1475 yards charged by Mr. Wheeler on page 24 of his deposition at $1.87½ and the earth excavation appears on page 47.

Q. What appears on page 47?

A. 78 yards of earth excavation.

Q. You don't get these results then from the books of the company do you?

A. Oh no, the application of these items was entirely an assumption and based upon the combination of the same with statements of Mr. Claud Hood.

2461 Q. And also with those of Mr. William Wheeler, were they not?

A. Yes sir I used his quantities and Hood's prices.

Q. So it is made up of Hood's deposition and Wheeler's deposition?

A. Yes sir and a conclusion outside.

Q. What was that conclusion?

A. That the amount of money paid A. J. Hood and brother covered these two items of work.

Q. You don't know whether it did or not do you?

A. I don't pretend to know.

Q. Did you state in your deposition that it was a guess or surmise?

A. I stated in my deposition that it appeared to, cover those two jobs of work, which, as I stated was based upon what Mr. Claud Hood stated that his father did this work at the prices he named, to-wit: 30 cents for the earth and $1.10 for the rock excavation.

Q. Mr. Hood also swore in his deposition that he was from 10 to 12 years old at that time didn't he?

A. He said he was young—that he was a boy, but that he worked there.

Q. Please turn to page "2" of the Loweree Ledger, item headed "Pump Station Account, Labor" and see if this account of A. J. Hood and brother is carried into this account on this page on the 5th line, October 31, 1882 $925.43, November —— $653.62, item from "J. 18" wherein it is stated that it is a transfer, A. J. Hood and Co. to balance account $229.05, making $1,808.10. It is a fact is it not that this amount, $1,808.10 appears in the Pump Station Account under the head of "Labor?"

A. Yes sir these charges are made to Pump Station Labor Account on page "2."

Q. There are other items in the same account on this page, are there not?

2462 A. Oh yes, numerous other items.

Q. What is the date of the first item appearing on page "2?"

A. September 9th 1882, $6.85.

Q. Now please state the balance of this account as shown on this page and the page in the ledger it is carried forward to?

A. The last line in this account, page "2" states amount forward to folio page 23, $4,096.24.

Q. And is that right?

A. And on page 23 this amount is brought forward and charged to labor pump station labor on that page.

Q. What is the balance of that account on page 23 and how is it disposed of?

A. The balance is $4,565.44 and is carried forward to new ledger folio 39, it states in red ink on the credit side of the account.

Q. Dropping this account, turn back to page 5 of this ledger and state the heading of the page?

A. "Pump Station, Material" is the heading of the account on this page.

Q. Please state the footings, debit and credit on this page, and the disposition of the footings?

A. The last line on this page 5 on debit side is amount forward, 25—$25,508.24, and on the credit side, amount forward $32.40.

Q. What page is that carried forward to?

A. Page 25 it says, but it is not.

Q. You will find it on page 29 won't you?

A. Yes sir, these amounts are carried forward to Pump Station and material account on page 29.

Q. Examine the last entry on page 29 and see if a balance has been struck, and state the amount of the balance and its disposition?

A. On the credit side of the account in red ink this entry

2463 is made "June 30, amount transferred to N. L. folio 39 $26,012.98" this entry being in red ink.

Q. Now please take the new ledger, which in your deposition you call the Martine Ledger and turn to page 35 and state the heading of the page?

A. On page 35 of the Martine ledger is an account denominated "Pump Station."

Q. What is the balance on that page and what was done with it?

A. On the last line of the account is this entry "amount forward to folio 36, $1672.43.

Q. It is properly carried forward to page 36?

A. Yes sir.

Q. Now what is the balance at the foot of page 36?

A. The last line is this, "amount forward, $2580.43.

Q. Now look at page 37 and see if the page is headed "Pump Station" and state if the balance $2580.43 is brought forward in the first line of the column?

A. It is October 1st, 1884,

Q. Please state the footing of this column and the disposition of it?

A. The last line says, "amount forward folio 38, $4092.36.

Q. Now turn to page 38 and state if the balance is correctly brought forward?

A. On page 38 I find Pump Station Account opened and this amount brought forward as of February 1st, 1885.

Q. What is the balance as shown by the transactions on page 38 and what was done with it?

A. On the credit side of the account is an entry in red ink "April 30, 1885, balance forward to folio 39, $5119.67.

The further taking of this deposition was adjourned until 2:30 p. m. October 21st, 1903.

2464

OCTOBER 21*st*—2.30 p. m.

The further taking of the deposition of W. M. Nixon continued.

Continuation of cross-examination by Mr. CALDWELL:

Q. Is that balance correctly brought forward on page "39?"

A. Yes sir, it is entered on page "39" May 1st.

Q. Going back to page "23" of the Loweree ledger where a balance of $4565.44 is shown, and on page "29" of the same ledger where a balance of $26012.98 is given, what is the sum of these two amounts?

A. $30,578.42.

Q. Now please examine page "39" of the Loweree ledger and see if this total $30,578.42 is closed into the account on this page?

A. On page "39" of the Martine ledger, under date of June 30th, 1884, in red ink, amount transferred to Construction Book, folio "23" "39," $30,578.42 is entered.

Q. Now please state the footings of page "39" and their apparent disposition?

—. The footings on both sides of the account is $38,700.56 without any explanation or remark as to their disposition.

Q. Don't you go to folio "77?"

A. No sir.

Q. Please look at folio "77" and see if it is not there?

A. The debit side is carried forward to folio "77," $38,700.56.

Q. Now look on page "77" and see if this amount is carried forward on the next page, to wit, "78," and state the final amount as shown as entering into Pump Station Account on page "78?"

A. The next to the last line of debit side of page "77" is a footing in pencil $41,688.99 which is carried over to page 78.

Q. Now what is the final amount?

A. The balance on the debit side of this account is $45,208.57 in pencil, and on the opposite side, or credit side of the account in pencil, August 1st, without any year, by balance forward to page "30" $45,208.57.

Q. Please give the date of the last entry on that page?
2465 A. August 1st, without any year.
Q. Isn't the last entry March 1st, 1890?
A. On the debit side of the entry, the last date is Au*fuse* 1st, 1896.

Mr. CALDWELL: Show that to the court please.
COMMISSIONER: From an examination of the entry I would infer that it was date 1890, because the entries immediately preceding are 1889, but it is barely possible that the entry may have been intended for 1896.
The WITNESS: That is transferred to page 230.

Q. How does page 230 start out?
A. It starts out August 1st 1890.
Q. That is a continuation of the acount you have just been testifying about?
A. No sir the matter I have been testifying about is down on the 7th line.
Q. What is the date of it?
A. It seems to be the same date, August 1st.
Q. August 1st 1890?
A. August 1st, 1890.
Q. Isn't it a fact that these books show on the pages I have asked you about that from September the 9th 1882 to March 1st 1890 the sum of $45,208.57 has been expended for labor, material &c. and charged to "Pump Station Account?"
A. Yes sir these books indicate such charges.
Q. Don't those books show such charges to that amount instead of indicating such charges?
A. Well I would have to figure through to see whether they show it or not.
Q. Well figure through it?

Mr. PICKLE: You have no right to have him add up the pages. He has not said they were not correct.

2466 A. Assuming that the additions are correct and the balances are correctly carried forward this account shows charges amounting to $45,208.57 up to page 78.
Q. Between September 1882 and March 1st 1890?
A. Between September 1882 and August 1st 1890.
Q. I asked you if it wasn't between September 9th, 1882 and March 1st 1890?
A. The last charge on the debit side is March 1st, but the date of this balance where it is carried forward is August the 1st.
Q. What is the last item on the debit side there?
A. A charge to M. F. Rourke, $2.70.
Q. Of what date?
A. March 1st.
Q. 1890?
A. 1896 is the way it reads to me.

Q. Please look to journal page 64 and see what it is, as you insist it is 1896?

A. I don't insist anything about it; I don't care what page it is, but this particular entry of $2.70 was transferred from journal on page 64 under date of March 1890.

Q. March 1st, 1890?

A. No, it don't give the exact date, it is just under March 1890.

Q. Now please turn to the deposition of William Wheeler and see if the following items, without the 20% allowance, are set out there of his estimate of the fair construction cost of the various parts enumerated, the same being on page 25?

	A. Engine House and Pit	$8,108.33
(p. 25)	B. Boiler House, frame side and roof	883.70
(p. 26)	C. Tool and Storage House	134.50
(p. 27)	D. Chimney	1,865.62
(p. 27)	E. Coal Chute	452.76
(p. 28)	F. Store House, Fence, &c	241.50
2467 (p. 28)	G. Pumping Machinery and Appurtenances, including	
(p. 29)	*a*. Davidson pumps	11,000.00
(p. 29)	*b*. Foundations for same	1,250.00
(p. 30)	*c*. Suction and discharge pipes, &c	2,036.26
(p. 31)	*d*-1. Boiler and Appurtenances	2,535.00
(p. 31)	*d*-2. Two additional boilers	2,485.00
	Making a total of	$30,992.67

A. These items are shown on these pages as read, but the total footing is not made here in accordance with the figures you give, there being a difference of 71 cents, which you failed to call, and with which the footing would be the same.

Q. Well you can foot it up can't you and see whether it is right or not?

A. I can give you the footing here. These items foot up, after taking into account the 71 cents omitted by you, the same footing, to-wit: $30,992.67.

Q. These items make the aggregate which is to be compared in Mr. Wheeler's deposition with the aggregate of $45,208.57, do they not, it being understood that the $30,992.67 is not affected with the 20% estimates?

A. I do not know. If the 20% was added to the $30,992.67, it wouldn't make $45,208.57.

Q. What I mean is this that the $30,992.67 without any 20% added represents the same items that are embraced in the $45,208.57 on the books?

A. I don't know without going through the books.

Q. Do you know of any other items that should go into the Pump Station Account except those that are indicated in the question I asked you setting out these items?

A. No I don't know anything either way, as I hav-n't traced it

through the accounts on the books. These accounts are very much mixed up, and I am not able to state without first checking
2468 through the accounts.

Q. Is there anything else in William Wheeler's estimate that goes into pump station account up to December 31, 1891?

A. He don't appear to include anything else at this time.

Q. Does he include it anywhere else up to December 31st 1891?

A. I don't know without looking through, but I assume he does not.

Q. Now suppose you add the 20% to the $30,992.67, how much does it make?

A. He appears to make it $37,191.20 on page 100.

Q. That is to say Mr. Wheeler makes the pump station construction cost about $8,000.00 less than the books make it, even including the 20% on his estimate?

A. His estimate appears to be about that amount less than the total charges to that account on the books.

Q. What did you make the construction cost of the pump station up to December 31, 1891?

A. For replacement?

Q. No sir the construction cost of it?

A. I didn't make a statement of construction cost. I made up a statement of replacement cost of the entire pump station, buildings, machinery and everything, but I did not propose that this was the price paid for original construction, and did not figure up the cost of original construction.

COMMISSIONER: Mr. Nixon, as I understand you, such construction cost as you have found appearing from the books of the company has only been used for the purpose of contradicting the analysis of William Wheeler?

A. This is true in the main; I have also used a great deal of these costs in replacement.

2469 COMMISSIONER: In forming your opinion about it?

A. Yes sir.

Q. Did you make an estimate of construction cost covering any period of the life of the plant?

A. No sir except the original construction and additions during the initial operating period, a part of which I read you this morning, but this was from the books—I didn't make it myself.

Q. Didn't you make an approximate estimate of the cost of the plant up to the beginning of the year 1891?

A. No, I made a statement of what the books showed as the cost.

Q. You did not make a separate estimate for pump station cost up to 1891 did you?

A. No sir I did not.

Q. Did you examine to see whether or not the aggregate of $45,208.57 as shown by the books is a proper aggregate of construction cost of the pump station?

A. No sir, and I couldn't have ascertained if I had examined it;

there are a great many of the charges covered by that work which are gone.

Q. I didn't ask you that; I asked you if you made an examination to see whether or not the aggregate of $45,208.57 shown by the books is a proper aggregate of construction cost of the pump station? and I submit that I have a right to an answer without an argument from the witness?

COMMISSIONER: That seems to be a fair question and you might say yes or no to it.

WITNESS: "Yes" or "no" would put a different construction upon my answer, and I desire first to make an explanation.

COMMISSIONER: Well when that's the case you have a right to make an explanation.

2470 A. That is true.

Q. Please turn to page 3 of the Loweree ledger and give us the heading of that page and the date of the first item?

A. The heading of page 3 is "Street account, labor." The first item that is dated is October 1st, 1882, cash $73.58.

Q. Now what is your understanding as to what work is covered by this account?

A. I assume it to be the laying of street mains and pipes in the street, that is street work.

Q. Now without asking you to go into detail of this account, please follow it through pages 3, 6 and 49 and state the balance there and its disposition?

A. The balance on page 3 is carried to page 6, and the balance from page 6 is carried to page 49, and the balance on page 49 is transferred by an entry in red ink, "new ledger folio 41 $6,049.95" under date of June 30,—no year shown—but I assume it is 1884.

Q. Now turn to page 4 of this ledger and state the heading of it, and the date of the first entry?

A. On page 4 the account is headed "Street account, material" and the date of the first item is September 30, 1882.

Q. Now what do you understand this account to be made up of?

A. I understand it to be made up of pipe, pipe fittings and specials. I notice it is purchased from pipe manufacturers.

Q. Please follow this account through pages 4 and 9 and state the balance on page 9 and what disposition is made of it?

A. This account seems to be carried from page 4 to page 9 and the balance on page 9, June 30th, 1884, new ledger $41,927.89.

Q. Now turn to new ledger page 41 and state whether or not this amount $41,927.89 and the previous amount mentioned as being on page 49 are brought into this page?

2471 A. Yes sir the total of these two accounts are incorporated in "street account" on page 41 of the Martine ledger under date of June 30th, 1884, the amount being $47,977.84.

Q. The heading of that page is "street account," isn't it?

A. Yes sir.

Q. Now without going into details examine pages 40, 41, 63, 64, 65, 66 and 67 and state whether or not these are all on the same ac-

count as page 41, to-wit; "street account" and state what the debit balance is there on page 67?

A. Pages 40, 41, 63, 64, 65, 66 and 67 are covered by "street account," with various and sundry charges and credits, finally culminating in a balance of $98,339.38 apparently carried forward to page 230.

Q. Now what is the date of that last entry?

A. This transfer entry is dated "1" without any month named, but the previous month named was June 1890.

Q. That shows expenditures on street account to that date of $98,339.38?

A. It shows charges to that amount.

Q. Are there any of those charges incorrect?

A. I don't know for I don't know whether they are expenditures or not.

Q. If the books were properly kept, they are expenditures ar-n't they?

A. No sir not necessarily.

Q. What would they be if not expenditures?

A. They might be transfers, charges or other items than expenditures.

Q. What did you find them to be when you examined the books?

A. I didn't trace this account through to ferret it out.

Q. What would you allow on account of this "street account"?

2472 A. I didn't allow anything as I didn't take the account into consideration.

Q. Why didn't you take it into consideration?

A. It was not necessary.

Q. Why wasn't it necessary?

A. Because I wasn't making up construction cost.

Q. You found in your work though that the total plant at the end of December 1891 had cost from $150,000.00 to $153,000.00 didn't you?

A. Yes sir.

Q. How did you get that?

A. I got that by tracing out the proper amounts charged to—I reached it accurately by the addition of the betterments to the original cost of betterments given you this morning amounting to $41,-863.60 added to the original cost of construction $112,227.97.

Q. Where did you get your cost of original construction?

A. From the Loweree books.

Q. Did you drop the books then and adopt some other plan for getting construction down to 1891?

A. I traced through the Martine books for betterments and additions after the original construction, and found betterments or additions consisting of—

Machinery, &c.	$3,946.67
Street mains and extensions	28,888.31
Reservoir repairs	5,058.32
Meters purchased	1,884.50

Merchandise on hand Dec. 31, 1891	234.33
Construction	709.07
Pump Station	1,142.40
Making total	$41,863.60

Q. Now in making up your original construction cost of
2473 $110,000 did you follow the books in all respects?

A. Not entirely.

Q. In what respects did you not follow them?

A. I didn't follow them through all their ramifications.

Q. Well how did you arrive at your estimate if you didn't follow them in all respects and cannot tell me where you did not follow them?

A. I found the amount of money that had been expended and unpaid bills which evidenced the cost of the plant in cash or what amount had gone into the plant.

Q. Then you allowed all the items in the construction account—original construction did you, and made deductions for unpaid bills?

A. Oh no.

Q. Well how did you do?

A. I traced all the cash, all the charges, made up tables and endeavored to locate all the expenditures so as to corroborate the amount of money that appears to have been obtained for construction, and which taken together with the unpaid bills, checked each other.

Q. What did the books show to have been the original construction cost?

A. I don't know whether they showed or not. There are series of red ink balances carried into the Martine books, but they do not appear to be very reliable.

Q. Do you say that they are not reliable?

A. They did not appear to be.

Q. Are they not all justified by the Loweree books?

A. They are carried from the Loweree books.

Q. Well why are they not reliable?

A. There are too many divisions and sub-divisions, and doubling up and inclusion of improper elements.

2474 Q. Can you show me a case of doubling?

A. I have just explained two or three in answer to former questions, where two or three accounts have been doubled into one.

Q. You mean the accounts are consolidated?

A. Yes sir.

Q. Do you undertake to say that the results are falsified by that consolidation?

A. Well they might be.

Q. Well are they?

A. I don't know.

Q. Well what right have you to say "they might be" if you don't know anything about it?

A. Well it is very easy to double them up in swapping from Peter to Paul and back again.

Q. I ask you to show me any instance in the confusing of accounts in the accomplishment of false results in these books?

A. Well sir the closing entries in these Wheeler and Parks books indicate the cost of the plant at $193,000.00, which is false in my opinion.

Q. Wherein is it false Mr. Nixon?

A. That is too much; it is excessive.

Q. Now are the accounts properly brought together there?

A. That is owing to what you want; if you want to show a large result, they are properly brought together; if you want to show the actual result they are improperly brought together.

Q. Do you mean to say that you know from other information or otherwise that the result is false as to the amount?

A. I mean to say that the conclusions reached by me in my investigation by a different route, convinces me that the cost shown by these books as carried into the Wheeler books, is excessive.

2475 Q. I understand then that you withdraw your criticism as to the method of keeping the accounts and apply it solely to the amounts appearing in the aggregates?

A. Oh yes sir, there are various and sundry methods in those books.

Q. They are a little incomprehensible ar-n't they?

A. They are somewhat doubled and twisted; every bookkeeper had a method of his own; every time they changed a bookkeeper, the method appears to have been changed.

Q. And your method is different from any of them isn't it?

A. Yes sir my present method would be different from any of them.

Q. This amount of $98,339.38 which you have testified about, appears upon the books to be for labor and material used upon the street work, pipe laying, &c. does it not?

A. It is supposed to represent charges of that character.

Q. What does it appear on the books to represent?

A. Just as I answered before, it appears to represent charges of that character.

Q. Going back to pages 54 and 55 of the Lowerce ledger, please state the headings of those pages?

A. Page 54 is headed "Force main, material, Dr. and Cr."; page 55 is headed "Force main, labor, Dr. and Cr."

Q. What is the date of the first item on these pages?

A. The first item on page 54 is date October 31, 1882 and the first item on page 55 is date November 3, 1882.

Q. What is the balance shown on these pages, and what disposition is made of it?

A. The balance on page 54, $5,631.78 appears to have been transferred on June 30, 1884 to new ledger, folio —, and the balance on page 55 amounting to $865.10 appears to have been

2476 transferred on same date to new ledger folio —.

Q. What is the sum of those two balances?

A. $6,496.88.

Q. Now see if that amount is not shown on page 4 of the new ledger—the Martine ledger?

A. It is.

Q. What is the date of the last item on this account on page 54 of the Loweree ledger?

A. It is hard to say. The last charge behind the balance on page 54 is July 31, 1883, and on the credit side there is an entry, November blank, and the year blank, by error $447.92.

Q. The date of the last item on page 54 is July 31 1883, isn't it?

A. The last item behind the balance is July 31, 1883.

Q. Is anything added to this account in the new ledger?

A. Not on page 4. There is a memorandum in pencil showing that the balance is transferred to page 230.

Q. This force main is a part of the pipe and appurtenances testified to by you, William Wheeler and others, is it not?

A. I assume so. It appears to have been bought from the Chattanooga Pipe and Foundry Works.

Q. The balance then stands the last item named by you as $6,496.88?

A. Yes sir that seems to be the last transaction on this account.

Q. Now see if on page 14 of the Loweree ledger you don't find the Real Estate Account?

A. Yes sir there is such an account.

Q. What is the amount there and how is it disposed of?

A. The amount charged July 27, 1882 is $7,800.00, and the amount is transferred on June 30, 1884 to new ledger, folio —, the same amount.

Q. Please look at pages 3 and 243 of the new ledger and
2477 give the total amount of this Real Estate Account?

A. On page 3 the total amount charged to Real Estate Account is $10,906.56 which appears to have been transferred by pencil memoranda to page 243.

Q. What is the total amount there?

A. The total amount charged on the credit side of Real Estate Account on page 243 is $11,689.89, which appears by a counter-entry on the credit side to have been carried to construction account.

Q. Give the date of the last item on page 243.

A. The transfer entry of December 30, 1891.

Q. I am not asking you for the transfer entry but for the last item?

A. That is the last item. The last charge is on July 21, 1891.

Q. So $11,689.89 is the showing of the books on Real Estate cost down to July 21, 1891?

A. Yes sir.

Q. Now see if on page 65 of the Loweree ledger you don't find the service account?

A. I do.

Q. What is the service account?

A. It is an account of the service connections to water takers.

Q. That is a construction account, isn't it?

A. Yes sir.

Q. What is the date of the first item there?

A. March 1st, 1883.

Q. Now I will ask you to follow this account through pages 65-77 headed "Knoxville Water Company" but bringing forward the balance from page 65; look at page 65 and bring forward the balance there?

A. On page 65 is a debit balance of $507.30 which is
2478 transferred by cross entry in red ink to folio 77 "Knoxville Water Company's account, which is there charged with this balance as service material $507.30.

Q. Now see if the balance from page 77 is not carried forward to page 5 of the new ledger under the head of "Tap Account"?

A. Yes sir Tap Account on the Martine ledger, page 5 is charged with $2,279.02 from construction books.

Q. What is the closing balance on page 5 of the new ledger?

A. The closing balance, transferred to page 230, is $1,554.78.

Q. Is that dated in June without reference to the year?

A. It is dated August 1st without reference to the year.

Q. What is the date of the last item before the transfer?

A. The last charge on the debit side is on June 1st without giving the year.

Q. That book doesn't run as far as 1891, does it?

A. The book runs to December 31, 1891.

Q. But the last item on page 5 does not appear to be as late as 1891, does it?

A. It does not.

Q. Now I call your attention to page 230 of the Martine ledger and ask you to state what the heading of the account is?

A. The heading of the account is "Betterment Account."

Q. I will ask you if the accounts which you have just been testifying about and have followed from page to page in the various ledgers are not closed in this betterment account?

A. They are.

Q. And all of the date of August 1st 1890 as follows:

Force Main Account, from page 4	$6496.88
Tapping Account from page 5	1554.78
Reservoir Account from page 44	30300.38
2479 Street account from page 67	98339.38
Pump Station account, from page 78	45208.57
Making a total	$181,899.99

A. There are two other accounts that you have omitted.

Q. Well I just ask for these six at the present.

A. Well I will have to test it.

Q. Well please calculate it?

A. Yes sir these accounts are charged under this betterment account in the amounts that you have recited and aggregate the total you have named.

Q. Now there are two other items of this account, construction

account from page 6, $7958.24, and meter account from page 117 $217.28. Please follow these back and see if they appear to be properly brought forward without going into details?

A. This account is charged with these amounts and brought forward in the same way as the previous amount.

Q. Now in addition to these various accounts testified to by you as closed in this general account of betterments as of August 1st 1890, there appears to be numerous other small items aggregating with the above that have been specifically mentioned, $193,794.41, or with two credits as shown deducted, a balance to debit of Betterment $193,710.81 as of December 31 1891, does it not?

A. Yes sir it does.

Q. Is there anything in these items or accounts as far as shown or as far as you can discover covering pipe, &c. laid in North Knoxville in 1891?

A. I don't know; I couldn't say. I understood the North Knoxville Work was done by Wheeler and Parks and not by the Company.

Q. You have testified that on page 243 of the ledger that
2480 certain items of real estate aggregating $11,689.89 appear. These are not closed into the Betterment account, are they?

A. No sir they are closed into Construction account.

Q. You don't mean the Construction account you have just spoken of do you?

A. That was Betterment account we have been talking about. The real estate seems to be closed in some account of the Betterment account, which is Construction account.

Q. But it is not included in this $193,710.81? is it?

A. Oh no they are separate entries.

Q. Please look to page 273 and see if there is not an account of office furniture, $350.71?

A. There is such an account.

Q. That is not in the Betterment account either, is it?

A. No it appears to be carried to Construction account.

Q. That is the proper place to put it, isn't it?

A. Well that depends upon what you want to do.

Q. Well I want to put it at the proper place?

A. Some bookkeepers would consolidate them under one account and others would distribute them into different property accounts.

Q. What is the last item in this office furniture account?

A. December 31, 1891, a charge to Galyon and Selden.

Q. Please look to page 276 and see if there is not a balance on account of Jackson street extension of $779.79 shown?

A. There is.

Q. On its face that is a construction account, isn't it?

A. I should say so.

Q. The date of the last item in it is prior to December 31, 1891, isn't it?

A. The last charge is on May 9, 1891, but the transfer entry and carrying the balance to Construction account is December 31, 1891.

2481 Q. Now without going into details please examine entries page 279 and see if there is not shown for Patton street extension a balance of $49.57?

A. There is.

Q. Also on page 280, 5th Avenue extension balance of $363.74?

A. There is.

Q. On page 281 balance East Clinch Avenue extension $204.85?

A. East Clinch street $204.85.

Q. And on page 282 Magnolia Avenue extension, balance $145.66?

A. There is.

Q. And on page 283 a balance on Crozier street extension of $9.48?

A. Yes sir.

Q. These items are all prior to December 31, 1891, are they not?

A. The charges on these accounts are prior to and up to that date. The transfer entries are made on that date.

Q. And they are all Construction items, are they not?

A. I should so consider them.

Q. Now from your answers to these various questions, to get at the book construction cost to December 31, 1891, leaving out North Knoxville Construction, we find as follows, do we not?

From page 230		$193,710.81
" " 243		11,689.89
" " 273		350.71
" " 276		779.79
" " 279		49.57
" " 280		363.74
" " 281		204.85
" " 282		145.66
" " 283		9.48
Making total of		$207,303.79

A. I guess you are correct. I make it $207,304.50.

2482 Q. Now turn to William Wheeler's deposition, page 101 and see if he does not give as his total estimated cost of these works to December 31, 1891, $257,911.33?

A. Yes sir he gives such amount on page 101.

Q. In that aggregate of Mr. Wheeler's is an item of distribution pipes and appurtenances in North Knoxville amounting to $32,271.25, is there not?

A. Yes sir.

Q. Deducting this last item, there remains a total of $225,640.08 as his estimate of the total cost of the remainder of the works, does there not?

A. Deducting this amount would leave $225,640.08.

Q. Now in that amount that you have last named is included Mr. Wheeler's 20% allowance for various stated purposes is there not?

A. I assume so.

Q. Now without asking you to calculate it but assuming that the 20% contained in this amount of $225,640.08, aggregates $35,331.68,

if this last amount should be deducted from Mr. Wheeler's estimate of fair construction cost, it would leave as his estimate, without these allowances $190,308.40 as the amount to be compared with and covering the book items of $207,303.79? that you have testified about, wouldn't it?

A. If the amount you have named was deducted from the last amount stated it would leave $190,308.40, but as to the comparison and adjustment, I couldn't say.

Q. In other words, if any value at all is to be placed upon the book cost of original construction, or construction as apparently shown by the books to December 31, 1891, it appears that this book cost is in excess of William Wheeler's estimate, without the 20% allowance by the sum of $16,995.39, does it not?

A. I hav-n't figured that.

Q. Well you san say, without figuring it that it is approxi-
2483 mately that, can't you?

A. I presume so.

Q. I think you have said that you agree with Mr. Wheeler that these books do not show adequate or sufficient data to furnish the construction cost, is that correct?

A. Well they furnish plenty of charges but they don't appear to be in the right place.

Q. I will ask you if they furnish adequate or sufficient data to determine the construction cost?

A. Not without the construction made outside of the books.

Q. Do you justify any part of your estimate of construction cost by the books?

A. Yes sir I have made some comparisons for replacement cost from the books. I have made no construction cost running through the entire plant.

Q. Don't you think it would be fairer and better to use the books entirely without estimates, or to use estimates entirely without the books, one of the two?

A. If the books included the entire transactions of the company it would certainly be best to use the books to ascertain the cost, expenses, construction and other expenditures incurred by the company, but these books are not full enough, as too much of the construction is not covered by the books.

Q. Don't these books show all the transactions of the company up to 1891?

A. I don't know; they don't appear to cover that North Knoxville construction that you refer to.

Q. Don't you know that the North Knoxville construction wasn't a part of the Knoxville Water Company's plant at that time?

A. It is now.

Q. Well was it at the time up to which I have examined
2484 you on these books, towit: 1891?

A. I really couldn't say; there was some dickering and trading between the company and contractors regarding this part of the plant, but just the date when it became the property of the company I am unable to say without further reference.

Q. I have examined you up to and through a part of the year 1891; you criticize the books for not showing the construction of the North Knoxville work. I will ask you if you did not know it to be a fact that the company didn't own that property up to the time I have been examining you on these books?

A. It seems to be included in Mr. Wheeler's estimate up to that time.

Q. I have asked you twice and I now ask you the third time if the Water Company owned that North Knoxville plant before December 31st 1891?

A. I don't recall the exact date when it came into the possession of the water company.

Q. Don't you know the Knoxville Water Company acquired the North Knoxville construction under its contract with Wheeler and Parks November 17th, 1893?

A. That is probably so.

Q. Well can't you come nearer to it than "probably"? and say that it is so?

A. The records will show more accurately than my memory. That construction is mixed up in these estimates.

Q. Where is it mixed up in these estimates?

A. On page 101 of Mr. Wheeler's deposition and previous pages.

Q. I just asked you to deduct that amount awhile ago, didn't I?

A. Yes sir, but it appears on several pages earlier in the deposition.

Q. Now where do the books fail to show any construction
2485 made by the Knoxville Water Company?

A. I do not know; I cannot say without tracing it through.

Q. Didn't you say awhile ago that they did not show all construction?

A. They don't show this North Knoxville construction.

Q. Is that what you meant to convey when you said they didn't show all construction ?

A. I meant the Wheeler and Parks construction.

Q. But they do show all construction down to 1891 that was done by the water company, don't they?

A. I suppose so; I don't know.

Q. If your construction is correct why are not the books showing a construction cost of $207,303.79 right?

A. Because the construction up to that time couldn't have cost that much.

Q. For what specific reasons do you conclude that it couldn't have cost that much?

A. For the reasons that the books show that it cost about $153,000.00 to $155,000.00.

Q. Haven't we just been through the figures here from page to page showing that it cost $207,303.79?

A. Well that is not a very reliable method, transferring from page to page and from account to account.

Q. What method did you pursue in order to secure a more trustworthy result?

A. I traced the entries through.

Q. You say you have been through all the entries?
A. All that were necessary.
Q. What do you regard as necessary?
A. I traced through all the accounts that were open covering purchases of various materials and machinery and equipment and checked through the cash books for cash payments for con-
2486 struction purposes, and put same together for comparison and verification of previous estimate of what it would cost for construction and additions and practically verified the same.
Q. Can you show the court what items embraced in this $207,000.00 odd dollars you rejected, and what reasons you rejected them for?
A. The books have a cost of $471,000.00 odd dollars.
Q. Can you show the court what items you rejected in this $207,000.00 odd dollars and the reasons for which you rejected them?
A. It was not necessary for me to reject; I built up. I didn't make up a comparative construction cost.
Q. Can you show the court the items that you do not include in your construction cost and that are included in the $207,303.79, and also show the reasons why they were not included in your estimate?
A. No, I never had any $207,303.79 to figure against.
Q. Well, there is a book cost of $207,303.79 as we have just found, isn't there?
A. I don't know, sir; I doubt it.
Q. Well what is it if it isn't that?
A. It is charges aggregating that amount.
Q. Well what is shown by the books as construction cost?
A. $471,496.75.
Q. That includes capital stock and bonds, don't it?
A. Yes, and other items, legal expenses, personal injury, &c.
Q. Are you willing to tell me how you cut this construction cost down from the amount we have got on the book $207,303.79 to some $60,000.00 less?
A. By the method heretofore explained, by ascertaining that original construction cost $112,207.97 and the additions and extensions $41,863.60.
Q. Well, let's see how you did that; what did you start with?
2487 A. I started with the Loweree construction book.
Q. Well, what did you take from that?
A. I traced out the money until I attained that result, then I took the Martine books and traced through them the Betterments, expenditures of additions and extensions and found the aggregate above named covering that construction.
Q. Now you say you "built up." I wish you to build up in this record item by item and show me how you reached your result?
A. I have already given you items under each head.
Q. Well, what is your first item?
A. Pump Station, $28,032.60.

Q. Now where did you get that?
A. I got it from the Loweree books.
Q. What page?
A. From all the pages in the book, almost.
Q. What date is that brought down to?
A. It is brought down to the last expenditure for construction for that purpose.
Q. Well, I want to know the exact date of it?
A. The next is reservoir——
Q. I am not asking you now about the reservoir, but about the exact date of the item of $28,032.60. I want to know the exact date you assign to that item?
A. I can't point that out without going through the books again.
Q. Well, I will ask you to find out that date?
A. Well, I will have to look it up, if material.
Q. Let me ask you this question. I want you to look at pages 23 and 29 of the Loweree book and see if Pump Station Account is not debited on page 23 for labor $4,565.44, and on page 29 for material $26,012.98?
A. Yes, sir, it has such charges including balances brought into the account.
2488 Q. That aggregates $30,578.42 does it not?
A. I assume it does.
Q. Your estimate of Pump Station cost from the books is $28032.60?
A. Yes, sir, but I don't have to take the Loweree books as they are charged and as they are transferred from page to page and balances carried forward. If I had done that there would be no use of me making the statement. I would just have added the amounts from the books.
Q. You find the books showing $30,578.42 as the Pump Station cost I mean from the Loweree books. Now you say that going on the Loweree books you find the cost $28032.60. Now what makes the difference?
A. I don't know. The books don't necessarily show that the Pump Station cost that much, but shows that the amounts charged to that account would aggregate that amount. I went through and dissected these accounts and analyzed them and compiled them.
COMMISSIONER: You say that these results must have been arrived at by deducting certain charges from the Pumpt Station?
A. Yes, sir, by deducting or omitting or disregarding certain charges on the books.
COMMISSIONER: Now are you unable at this time to state which ones they are?
A. No, sir, without going back and going over them again.
Q. Can you do that by tomorrow morning?
A. I think I have a memorandum of it on another tab.
Q. Can you have it here by in the morning?
A. Yes, sir.
Q. Then I will ask you to have the same kind of a statement on all these items?

A. I think I have it if I hav-n't mislaid it.

The further taking of this deposition was adjourned until Thursday morning, October 22nd, 1903, at 9:00 o'clock A. M.

2489 THURSDAY, *October* 22, 1903—9:00 o'clock a. m.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

Q. Mr. Nixon, have you the statement this morning that was called for on yesterday?

A. Yes, sir, the following is the items in construction account making up Pump Station which I have adopted as proper charges to that account:

M. F. Rourke Page 33 Journal	$208.80
M. F. Rourke " 33 "	289.34
Knoxville Foundry & Machine Co. Page 25 Jour.	559.83
" " " 15, 21, 25, 29, 31 Jour.	4673.72
H. O. Nelsen, page 28-31 Jour.	346.34
J. A. Newman " 25-29 "	380.30
William Kirkup & Sons, pages 21-23, Jour.	239.27
Cincinnati & Newport Pipe Co., page 23-50	599.19
Chattanooga Foundry & Pipe Works, page 4, Jour.	635.41
W. C. Fulcher, page 25, Jour.	6032.63
H. L. McClung, Jr., pages 15, 20, 24, 26, Jour.	265.46
Davidson Pump Co., pages 25-28, Jour.	557.30
" " " " 25, 26, Jour.	10260.00
Railroad Freight, page 27, Jour.	85.51
A. J. Hood and Brother, page 18, Ledger	1808.10
Fred Stone and Company, pages 21, 23, 25, Jour.	391.61
Chattanooga Foundry and Pipe Works, pages 23-30, Jour.	195.58
Knoxville Gas Company, page 23, Jour.	3.45
Cash items: pages 3, 5, 7, 13, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 47, 49, 51, 59, 67, Cash book	500.06
Total	$28032.60

2490 Q. I see that on the Lowerce ledger under Pump Station account on the debit side, page 2, you have marked only the item $559.83 under the date June 30th, 1883, from Journal page 25. Have you examined all the items?

A. I didn't go through the Pump Station account and mark the amounts; I marked them at the pages found on the Journal and also on the various accounts where posted.

Q. Well, what disposition do you make of the other items on page 2 of the Journal which you have not marked?

A. I don't know; I haven't investigated; they may be covered by the amounts made up, but I haven't checked them to ascertain.

Q. Well, please look to the Cash book, page 3 September 9th,

$6.85 and see whether or not you have allowed that as it appears on page 2 of the Loweree Ledger?

A. Yes, sir, it was allowed.

Q. What is it for?

A. Pump Station and hauling lumber.

Q. You have allowed that have you?

A. Yes, sir.

Q. Cash book page 3, $18.60?

A. "Paid James King;" I allowed that.

Q. Cash book page 5, $76.30, September 23rd; did you allow that?

A. Yes, sir, that is allowed.

Q. Cash book page 5, September 25th, $11.50, did you allow that?

A. Yes, sir, I have used that amount. It is a payment to James King.

Q. Journal page 7, October 31, Hood $925.43?

A. Yes, sir, that is included in Hood's credit of $1808.10.

Q. It is in the Journal page 7 of that amount, isn't it?

A. Yes, sir.

Q. November 31, 1892, Hood, $653.52?

2491 A. That was also included in the Hood amount of $1808.10.

Q. Now did you check out cash November — page 8 of the Cash book, 20 cents?

A. No, I didn't consider that side of the account.

Q. Now turn to the Cash book page 19, January 13th, 1883, $6.95?

A. Yes, sir, I used that amount.

Q. The same book, page 21 January 27th, $13.50?

A. I used that amount also.

Q. The same book, page 21, February 3rd, $41.30?

A. Yes, sir, that amount is included in the statement.

Q. Same book page 23, February 10, $28.50?

A. That amount is also included in my foregoing statement.

Q. The same book page 23, February 17, $51.30?

A. That amount is also included in my statement.

Q. Same book, page 25, February 24, $67.15?

A. That amount is also included.

Q. Same book, page 25, March 3, $62.20?

A. That is also included.

Q. Journal page 18, March 1st, 1883, $229.05?

A. That amount is included in the credit of $1808.10 to Hood and brother.

Q. Cash book, page 27, March 10, $54.22?

A. That amount is also included in the cash item of the foregoing statement.

Q. Cash book, page 27, March 17th, $57.60?

A. That is also included.

Q. Cash book, page 17, March 24, $68.65?

A. That is also included.

Q. Cash book, page 27, March 31, $197.50?

A. That amount is also included and several others on
2492 this page.

Q. Cash book, page 29, April 4, $11.25?

A. That amount is also included.

Q. Cash book, page 29, April 7, $23.13?

A. That amount is also included in my foregoing statement.

Q. Cash book, page 29, April 14, $38.60?

A. That amount is also included.

Q. Cash book, page 31, April 21, $71.65?

A. That amount is also included, also two other amounts on the same page.

Q. Cash book, page 31, April 28th, $33.50?

A. Yes, sir, that is also included.

Q. Cash book, page 33, May 5, $67.26?

A. That is also included.

Q. Cash book, page 23, May 12, $78.95?

A. Also included.

Q. Cash book, page 33, May 19, $70.50?

A. That is also included.

Q. Cash book, page 35, May 26, $93.95?

A. That is also included.

Q. Cash book, page 37, June 9, $18.00?

A. That amount is also included.

Q. Journal, page 25, June 28, $332.25?

A. Yes, sir, that is included in the account of Davidson Pump Company.

Q. Cash book, page 39, June 16, $32.90?

A. That is also included in cash items.

Q. Cash book, page 39, June 23, $29.80?

A. That is also included.

Q. Cash book, page 39, June 30, $34.55?

A. That is also included.

2493 Q. Cash book, page 41, June 30, $15.35?

A. That is also included.

Q. Journal, page 25, June 30, $559..83?

A. Yes sir that is included with the account of the Knoxville Foundry and Machine Company.

Q. Cash book, page 43, July 7, $15.30?

A. Yes sir that is included in the cash items in the foregoing statement.

Q. Now turn to page 23 of the Ledger. I ask you as to the following items. Journal page 28, August 7, 1883, $225.05?

A. I suppose that is included in the account of the Davidson Pump Company.

Q. Well are you sure about that?

A. Yes sir, that amount is included in the account of the Davidson Pump Company.

Q. Cash book, page 37, August 11, $5.05?

A. That amount is included in the cash items in the above statement.

Q. Cash book, page 47, August 18, $5.70?

A. That amount is included in the cash items.
Q. Cash book, page 49, August 25, $13.30?
A. That amount is also included in cash items.
Q. Cash book, page 49, August 31, $7.30?
A. That amount is also included in cash items.
Q. Cash book, page 51, September 8, $1.00?
A. That amount is also included.
Q. Journal, page 33, October 25, $208.80?
A. That amount is included in the account of M. F. Rourke in the above statement.
Q. Cash book, page 67, January 12, 1884, $3.00?
A. That amount is also included.

2494 Q. I turn now to page 5 of the Ledger and ask you as to the following items under heading "Pump Station, Material." Journal page 4, October 31, 1883, $769.46?

A. I appear to have $635.41 including account of Chattanooga Foundry and Pipe Works, and $28.84 including the account of the Cincinnati and Newport Foundry and Pipe Company on that page in the above statement.
Q. Do you find an item of $769.46 on that page?
A. Yes sir.
Q. What does it appear to be for?
A. It appears to be for the two items I have called, and one to C. James and Company for $105.21.
Q. Do you allow the three items?
A. I allow two of them; I hav-n't investigated the other $105.21. This $28,032.60 statement of Pump Station is not my making up, but it is a statement from the books of the company.
Q. Well I am not asking you now from the books according to what they show. Why do you not allow that $105.21 to C. James and Company?
A. I don't know; I hav-n't investigated it. I hadn't noticed it until now. I don't know whether it is a proper charge to Pump Station construction or not.
Q. Do you know about the other two items?
A. Yes sir I found the other two.
Q. How did you happen to overlook this one?
A. I don't know.
Q. Well I wish you would investigate it now and see whether it is proper or not?
A. I don't find that amount on page 23.
Q. Do you find any entries to C. James there?
A. No sir I do not.
Q. Look at Cash book, page 9 and see if you find it there?

2495 A. Cash book page 9 has C. James and company charged with $105.21. It don't say for Pump Station material or what.

Q. Well what do you conclude as you find it charged under Pump Station in Ledger and also Journal?
A. I would hunt it out before I would put it in my account.

Q. Well how would you hunt it out, it must be in the books somewhere.

Q. Well I will have to get you to hunt it out?

A. Well it is down here on page 4 of the Journal; it is down here in material.

Q. You say it is charged to material?

A. No, it says "Pump Station material."

Q. On page 4 of what?

A. Page 4 of the Journal. It is no doubt a proper charge but I didn't have it.

Q. Then it should be added to that amount of $28,000.00? shouldn't it?

A. I don't know whether it should or not.

Q. Well what would you do with it, leave it out entirely?

A. No I suppose if it is regular it ought to go in.

Q. And increase your estimate that much?

A. Not my estimate; it would increase the amount of that statement that much.

Q. That is to say it should be added to the sum of $28,032.60?

A. It might be.

Q. Hav-n't you just said it should be?

A. If it is material for that purpose.

Q. Well do you dispute that it is material for that purpose?

A. I don't know; I hav-n't seen the items.

Q. Don't you find it properly entered on the books?

A. No sir.

Q. Why didn't you find it in the first instance?

A. I don't know.

2496 Q. You overlooked it didn't you?

A. I don't know. I had sufficient amounts to make up the $28,032.60 called for by that statement.

Q. By what statement?

A. The statement I found in the Ledger.

Q. Where do you find that statement in the Ledger?

A. It is loose in there.

Q. Loose in here?

A. I don't know whether these are the sheets or not. There were some sheets in here that purported to be a trial balance from the books.

Q. I hand you two loose sheets taken out of the Lowerce Ledger, being pencil writing and figuring on the back of sheets of letter paper headed "Knoxville Water Company, Knoxville, Tennessee 188-" and ask if those are the sheets from which you get the estimate of the amount, $28,032.60 as the cost of the Pump Station? All I ask now Mr. Nixon is an identification of the sheets?

A. I would have to add them first to see if I can identify them. (Witness figures) Yes, one of these is the statement I refer to.

Q. Did you examine both the sheets that I handed you?

A. Yes sir.

Q. What is the date of those sheets?

A. They have no date; they appear to have been made up years ago.

Q. They are mere pencil memoranda, are they not?

A. They are.

Q. And you have filed in here as the cost of this Pump Station construction what you find from these loose pencil memoranda instead of looking to the books for the amount?

A. Oh no I have endeavored to verify the memoranda there by ascertaining the amount of cash that went into the business and tracing it through the various accounts.

2497 Q. Did you examine the Pump Station account in the Ledger that I have called off to you?

A. Yes sir.

Q. Did you find that it corresponded with the $28,032.60 Pump Station construction?

A. I don't think I have compared it.

Q. Don't you know that the two don't correspond?

A. I don't know whether they do or not; it would be strange if they did.

Q. Why would it be strange?

A. Because the result of the books shows much more than the combination of those balances.

Q. Are you willing to base your estimate upon this pencil memoranda?

A. Not entirely.

Q. Well what do you base it on in addition?

A. Upon my investigations.

Q. Did you investigate the account of Pump Station material?

A. Yes sir.

Q. As it is in the Journal from my calling it off to you?

A. Yes sir I went through it pretty thoroughly.

Q. Well do the pencil memoranda and book accounts agree?

A. I don't think they do.

Q. Well do you adopt the pencil memoranda in preference to the book account?

A. I hav-n't adopted either.

Q. You took the amount of the Pump Station account from the pencil memoranda? didn't you?

A. Not entirely.

Q. Well where else did you get it from?

A. I got my first intimation that this memoranda probably represented the original cost of the Pump Station and proceeded to assemble the accounts representing purchases of materials and equipment for that station and added thereto the cash items that

2498 I found on the cash book for labor and sundry other materials and secured an aggregate of approximately the same as that trial balance indicates.

Q. When was this trial balance taken off?

A. I have no idea.

Q. What date do you assign your construction cost of $28,032.60 to?

A. At the completion of construction.
Q. What date was that?
A. In 1883 some time.
Q. You don't know whether these pencil sheets were made off before or after 1883, do you?
A. They must have been made after from the totals of the accounts. They indicate they were made afterwards.
Q. If you had not found these pencil memoranda, how would you have arrived at the cost of Pump Station account?
A. By the same method I pursued.
Q. I don't ask you to state in general terms, but I ask you to state what method you would have adopted?
A. I would have proceeded just as I did, by searching through and finding all the purchases of material and equipment that was bought for the Pump Station and assembled those amounts and the payments for those purposes, and arrived at the cost in that way.
Q. What would you search for and find?
A. The purchases.
Q. Where did you find them?
A. In those books.
Q. And you accepted them, did you?
A. Oh yes sir.
Q. Now why did you accept those entries on the books when you declined to accept other entries in the book here?
A. I don't know that I have declined.
Q. Did you accept the others?
A. I don't know.
Q. Did you examine them to see whether you did accept them or not?
A. I expect I did.
2499 Q. Do you know whether you did or not?
A. I didn't get that amount as the cost of the Pump Station.
Q. I will ask you if you examined this Pump Station Construction account on the books?
A. I think I did.
Q. I ask you if you did?
A. I am confident I did.
Q. Are you confident by express recollection of the fact or do you inferentially think you did?
A. Well both.
Q. Please look to the Journal page 7, October 31, 1883, $85.51 and say whether or not you included that in your total of $28,000.00 odd dollars?
A. Yes sir that amount is included in my foregoing statement under the head of "railroad freight."
Q. On the Ledger under date December 30, 1883, there is an entry "Res'r. Mat. error $148.00," doesn't refer to either the Journal or cash book on the ledger. Do you know what use you made of that item if any?
A. I don't seem to have used that amount.

Q. Did you use an item of $16.60 January 20th 1884?
A. What page?
Q. There is no reference on the ledger to any page?
A. I find an item of $16.60 on the Cash book, page 21 that was used.
Q. Is its date January 20, 1884?
A. Yes sir.
Q. Journal page 15, January 31, 1884, $2400.00?
A. Yes sir that was used. That is in the account of the Knoxville Foundry and Machine Company in the foregoing statement.
Q. Journal page 15 January 31, 1884, $6.00?
A. I think that was used.
2500 Q. Journal page 15, January 31, $8.00?
A. Yes sir that was used in the account of H. L. McClung, Jr.
Q. Cash book, page 25, March 7, $225.40?
A. That is included in the cash items.
Q. Cash book, page 27, March 24, $6.00?
A. That is also included in cash items of Pump Station.
Q. Cash book, page 29, April 14, $35.21?
A. That amount is included in cash items.
Q. Journal, page 20, April 41, $161.30?
A. That seems to be included in the account of H. L. McClung, Jr.
Q. Journal, same page, same date, $43.06?
A. Yes sir that is included in the account of H. L. McClung, Jr.
Q. Cash book, page 31, April 16, $347.94?
A. Yes sir I have that.
Q. Journal, page 21, May 1st, $861.31?
A. Yes sir I have those amounts from Kirkup and Sons, Fred Stone and Knoxville Foundry and Machine Company.
Q. Cash book, page 33 May 5, $43.35?
A. Yes sir I have those.
Q. Cash book, same page, May 12, $125.00?
A. Yes sir I have this item in the cash item.
Q. Cash book, page 35, May 23, $15.58?
A. Yes sir I have that.
Q. Journal, page 23, June 8, $962.12?
A. Yes sir I have these amounts in the account of William Kirkup and Son, Fred Stone and Company, Chattanooga Foundry and Pipe Works and Cincinnati and Newport Iron and
2501 Pipe Co.
Q. Journal, Page 24, June 8th, $13.60?
A. I have this amount in the account of H. L. McClung, Jr.
Q. Journal, page 24, June 8th, $21.50?
A. Yes sir, I have that in the account of H. L. McClung, Jr.
Q. Journal, page 25, June 28th, $404.93?
A. Yes sir, I have that amount in the accounts of the Davidson Pump Company and Fred Stone & Company.
Q. Journal, page 25, June 30th, $1012.63?

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A. Yes sir, I have this amount in the account of the Knoxville Foundry and Machine Company.
Q. Journal, page 25, June 30th, $6032.63?
A. Yes sir, I have this amount in the account of W. C. Fulcher.
Q. Journal, page 25, June 30th, $10.03?
A. I have this amount in the account of J. A. Newman.
Q. Journal page 26, June 30th $10,000.00?
A. I have that amount in the account of the Davidson Pump Company.
Q. Cash Book, page 43, July 7th $5.00?
A. Yes sir, I have that amount in the cash items.
Q. Cash Book, page 43, July 7th, $30.65?
A. I have that amount in the cash items.
Q. Cash Book, page 43, July 7th $14.40?
A. I also have that amount in the cash items.
Q. Journal page 27, July 7th, $360.06?
A. I don't think I have got that in this statement.
Q. Well did you over-look it, or decline to consider it?
A. I supposed I over-looked it.
Q. What does it appear to be for?
A. The amount of their bill.
Q. Whose bill?
A. Edington & McMullen's.
Q. Well, what do you say about it now?
2502 A. Why it is in the same category as the James matter; if it is a proper charge, it ought to be included.
Q. You don't dispute that it is a proper charge, do you?
A. I don't know.
Q. Well examine it and see?
A. There is no way to see here. My recollection is that I was informed they were quarrymen or rock men, and I went to see all these people that I could find.
Q. It is properly charged to "Pump Station Account" isn't it?
A. Well presumably so.
COMMISSIONER: What you mean is, that if you had noticed it you would have put it in?
A. Yes sir, when I was making the statement.
COMMISSIONER: And also in the other item of James, if you had noticed it, you would have put it in?
A. Yes sir.
Q. Cash Book, page 45, $88.87?
A. That amount is included in the cash items.
Q. Cash Book, page 45, July 23, $16.58?
A. That amount is also included.
Q. Journal, page 26, July 30th $12.00?
A. That is in the account of H. L. McClung, Jr.
Q. You mean by that it is included?
A. Yes sir, in the account of H. L. McClung, Jr.
Q. Journal page 28, August 4th, $303.00?
A. That is included in the account of H. O. Nelsen.
Q. Journal page 29, August 7th, $371.23?

A. That seems to be included in the account of J. A. Newman.
Q. Cash Book, page 49, August 25th, $3.35?
A. Yes sir, that is included.
Q. Journal, page 29, $67.71?
A. That is included in the account of the Knoxville Foundry and Machine Co.
2503 Q. Journal page 29, August 25th, $480.19?
A. That is included in the account of the Knoxville Foundry & Machine Company.
Q. Turning now to the items on page 29 of the ledger under heading "Pump Station material" account; Cash Book, page 49, August 3, 1883, $6.80?
A. That amount is included in the cash items.
Q. Journal page 30, August 31 $115.05?
A. That amount is included in the account of the Chattanooga Foundry and Pipe Works.
Q. Journal, page 31, September 1st $21.67?
A. That amount is included in the account of H. O. Nelsen, in my foregoing statement.
Q. Journal page 31, Sept. 30, $17.29?
A. Yes sir, that is included in the account of the Knoxville Foundry and Machine Co.
Q. Journal, page 33, October 25, $289.34?
A. Yes sir, that is included in the account of M. F. Rourke.
Q. Journal page 34, October 25, $18.49?
A. There is such an account and such a charge, but I hav-n't included it. It is to the credit of Mr. Rourke and for pipe, fittings, nipples, valves, unions &c. and indicates that it is a proper charge.
Q. Cash Book, page 59, Nov. 17, $31.30?
A. That amount is charged in the cash items.
Q. Journal page 37, December 31, $10.00?
A. I think that is included in the Davidson Pump Company account.
Q. Well, are you certain about that?
A. I haven't got it marked. Well $6.00 of it is any way. I suppose it all ought to be included.
Q. Journal page 38, December 31, $37.20?
A. That is a charge to George P. Sheldon; a draft to
2504 Chapman White Lyons and Company; I don't seem to have that.
Q. And ought it to be allowed or not?
A. I expect it ought; it is a 30 day draft; I suppose it is a proper charge; it don't show for what material; the material may have been already charged; I would have to investigate that to see whether material and draft both should be charged.
Q. Well I wish you would investigate it now?
A. This charge is for a draft—Mr. Sheldon's draft.
Q. I wish you would look it up and see if you can tell us any further about it?
A. I cannot say. If I had struck it before, I think I should have included it.
Q. I will ask that before we resume the hearing tomorrow, you

will make an addition on your own account of the amounts that you have approved under the heads of Pump Station labor and Pump Station material as I have called them to you from the ledger this morning and as you have approved them from the cash book and journal, and see the sum of those two accounts, as you have approved them; also I will ask you to prepare, so far as you can by tomorrow morning the pages of items in the Reservoir account, Labor and Material as you have shown them in regard to Pumping Station this morning. I will not ask the same work in regard to street mains, services, &c., as the differences appear to be comparatively small?

The further taking of depositions was adjourned until *until* Friday morning October 23rd, 1903, at 9 o'clock A. M.

2505 FRIDAY, *October* 23, 1903—9:00 o'clock a. m.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

Q. Mr. Nixon, you were asked at a former day, to indicate on the books charges for the years 1896 and 1897 as mingled with the charges for the year 1900, and charges for the year 1900 mixed with the charges for the year 1896 and 1897. Have you prepared yourself to indicate those charges as yet?

A. No, I had forgotten all about looking that up. I can do that.

Q. Well I will ask you to furnish a table, or show the pages and years in William Wheeler's deposition where he has charged pipe from $25.00 to $35.00 a ton, where you say it should have been from $13.00 to $25.00 a ton. My question in that connection was that you furnish a statement in all such cases of conflict between the price that should have been allowed and the price that Mr. Wheeler charged. Did you prepare a statement of that kind?

A. No I hav-n't prepared it yet; I overlooked it, had forgotten about it.

Q. Now have you added up the figures of construction cost on Pump Station account as they were called out to you yesterday, and if so please state what you now make that cost to be?

A. I have added up the amounts called off as cash items and find the same amount to $2,427.04. In adding up the accounts that I had yesterday, representing purchases of materials and supplies for Pump Station, together with the addition of the three amounts as pointed out to me yesterday as having been omitted by me, make an aggregate of these amounts of $28,058.50, the total being $30,485.54 or about $1,000.00 less than the aggregate of the balances
2506 carried forward to the new ledger.

Q. Then you make the construction cost of Pump Station account $30,485.54?

A. I find that amount charged on the books to "Pump Station."

Q. Well what do you fix now as construction cost of the Pump Station?

A. I am not fixing Construction cost.

Q. What do you now say is the amount that should be stated where you have heretofore put it at $28,032.60?

A. Such a proper proportionate amount as an investigation of the books would disclose, so that the aggregate of all these accounts should not exceed about $112,000.00, as that is all the money that went into this construction and any extension or amplification of the books should not increase the cost in excess of the expenditures for that purpose.

Q. Then I understand you fix the construction cost of the Pump Station with reference to your stated amount of $112,000.00 as the total construction cost of the plant, and allow the $112,000.00 result to control the cost of constructing the Pump Station to the extent of disregarding the figures you have found on the books?

A. Yes sir I do so; if I were making up these additions myself, which I haven't undertaken to do, simply adopting the data that I found on the books for the purpose of making the approximate proportional aggregates heretofore reported.

Q. Didn't you find all the estimates that I read to you yesterday except one item of $14.00, properly appearing on the books in the Construction cost of the Pump Station?

A. I suppose so; I don't remember that I checked them off; I don't think I did; you read them off.

Q. Didn't you check them off and don't your deposition so
2507 show that you approved each item except in the instance I have mentioned?

A. Yes sir and I added them up and have given you the aggregate.

Q. Now Mr. Nixon when you find that these books show that the construction of the Pump Station cost upwards of $30,000.00, why don't you admit that it did cost that?

A. Because they didn't have money enough to have given it that cost and the other costs given is the reason I don't admit the correctness of these balances.

Q. I will ask you to demonstrate the incorrectness of either one of these items you approved yesterday?

A. I couldn't attempt to do that without tracing it back and investigating each item.

Q. Well I will ask you to trace it back?

A. It cannot be traced back on the books. I would have to have the transactions. For instance there is a $10000.00 charge for a pair of little pumps as paid to the Davidson Pump Company, part of it seems to have been paid in cash and part by draft by Mr. Sheldon of which he took credit, and there is no method of ascertaining whether the pumps cost $10,000.00 or whether more than $5,000.00 was ever paid for them in money, and therefore with the information available, it is not possible to demonstrate the absolute correctness of these transactions from the books.

Q. Well seeing these items on the books, have you any fact upon which you base a reason for rejecting any of them?

A. Yes sir I have two facts; first, that there was a bid to do this work for $95,000.00 by a very responsible concern, R. D. Wood and

Company of Philadelphia and second that the engineer who
2508 was in charge of the work swears that the aggregate cost was about $100,000.00.

Q. Where does the engineer swear that?

A. In a deposition in one of these cases.

Q. And on those two facts alone you undertake to set aside the actual figures in the books?

A. No sir; there is a third fact, that the books disclose that this construction was paid for from the proceeds of $125,000.00 of bonds, the amount realized being given at $121,850.00, that over $10,000.00 of this amount was used for the payment of coupons on these bonds, leaving about $111,000.00 of money available for the construction of this plant. I also find that there were other miscellaneous receipts amounting to $903.27, which is to be added, which fact would show that it was an impossibility for the plant to have cost more than the amount of money that was spent for the purpose. Then tracing the cash payments from the cash book, shows that $106,171.80 was paid in cash as shown by the cash book, and $12,136.00 in drafts that Mr. Sheldon credited himself with and charged to various accounts and parties, and that there were credits from these payments amounted to $8,282.78, which deducted from the aggregate of the two former amounts mentioned show that $110,027.02 of money and drafts was the extent of the expenditures on this plant.

Q. And now when the books show a certain amount spent on the Pump Station, you conclude that that amount could not have been spent on it because you fix in your judgment a proportion of the $110,000.00 as the cost of the Pump Station, is that your reason?

A. No sir there is another fact that would have some influence with me. I hav-n't fixed a proportion; I have found a solid limit of from $110,000.00 to $112,000.00, which could not have been transgressed in this expenditure, and have therefore not at-
2509 tempted to do so or to make any distribution of the different items of construction that would reach a greater aggregate.

Q. Having reached the conclusion that only $110,000.00 was available for purposes of construction, did you then divide out that sum arbitrarily between the different items of construction?

A. No sir I didn't attempt to make any such division.

Q. Well how did you make your apportionment?

A. I made them from the suggestions contained in that loose trial balance found in the ledger which appears to have been made soon after the construction was completed.

Q. Now this loose trial balance, as you call it, is taken from the books, isn't it?

A. It purports to be, as it gives the amounts that the books show on the various accounts, and uses the same titles as the books.

Q. I ask you if it could be a trial balance of the Knoxville Water Company without being taken from its books?

A. Not of this book.

Q. Hav-n't you examined it enough to know that it is taken from the book?

A. Yes sir I am satisfied it was taken from the book in which it is found.

Q. And you don't know the date it is taken from the books?

A. It don't show the date, but the amount of the accounts show that it was soon after the completion of the construction.

Q. But you don't know whether it was taken before or after the construction, do you?

A. No sir.

Q. Now if the trial balance derives its value from the book, which is the more trustworthy, the trial balence or the books?

A. Well they are in the same category.

2510 Q. If the books show a different result from the trial balance, the trial balance being merely a pencil memoranda and without any date, to which would you attribute the greater importance and value as proof, the pencil memoranda or the books themselves?

A. That would depend upon conditions.

Q. Well to which do you attribute the most importance and value in this instance?

A. The trial balance appears to be more corroborative of the aggregate expenditures for the purpose than the balances made up on the books and carried into the Martine Ledger.

Q. Did you go through the old books to verify this trial balance sheet?

A. No sir I didn't attempt to do so.

Q. Do you know whether it agrees with the books or not?

A. I don't know; it uses a great many of the same amounts of accounts as shown by the books, but whether it is in entire accord on the date it was made up, I am unable to say without I had made an investigation for that purpose, which I did not.

Q. Well if you don't know whether it agrees with the books or not, how do you know it is more corroborative of the books than your results are?

A. I know it is more corroborative of the amount of expenditures than the aggregate of the balances carried forward for the reason it is nearer the amount, the aggregate amount shown by the trial balance being $112,271.00 while the aggregate amount of the balances carried forward is a much greater amount.

Q. How much greater?

A. I don't know; I assume that they aggregate about $128,000.00.

Q. That is that the books show $128,000.00?

A. That the aggregate of the balances of the accounts

2511 on the books would make about $128,000.00. Mr. William Wheeler on pages 292 and 293, Vol. "1" of his deposition, states as his cost of the original construction $128,063.58, which he says includes 20% profit for contractors, engineering and supervision, but does not include the $7,800.00 paid for real estate and deducting the 20% and adding the real estate secures an amount of about $114,000.00 as the cost of original construction, which is corroborative and sustains the cost as attained from the money that was available for the purpose.

Q. I understand then that you approve Mr. Wheeler's estimate in that respect?

A. He appears to approve my conclusions.

Q. I asked you if you approved his conclusions in that respect?

A. As his result is so close to my conclusions, I must agree with him, or within $1,000.00 or $2,000.00 or so.

Q. You think then we may safely go upon the basis of Mr. Wheeler's analysis of this plant on the subject of original construction cost?

A. That far you might. I cannot endorse his estimate by which he reaches this aggregate.

Q. Why not?

A. Because it is erroneous and excessive, in my opinion.

Q. You don't endorse the items then but endorse the result?

A. His result endorses or sustains my result.

Q. Now Mr. Nixon what date do you assign to these pencil memoranda which you have dignified by the name of "trial balance"?

A. I don't fix any date; I am unable to locate the date it was made.

Q. When was this construction completed?

A. Why the latter part of 1883 I understand; probably
2512 in the summer of 1883; water was turned on the 30th day of May 1883 the records show, or Decoration Day.

Q. And when was the construction completed?

A. It must have been completed in a short time thereafter.

Q. There was construction work done however after that time?

A. There must have been some operations during that Fall as some money was received.

Q. There was also some construction after that date wasn't there?

A. I assume there was some completing construction—I don't know.

Q. Well what date have you assigned for the completion of construction?

A. I hav-n't assigned any.

Q. Can you assign one now?

A. No sir.

Q. When did the work begin?

A. Sometime in the Fall of 1882.

Q. And was not finished until the Fall of 1883 was it?

A. Sometime in 1883.

Q. Wasn't it finished in the Fall of 1883?

A. I should assume it was finished in the Summer or early Fall of 1883 from the data obtainable.

Q. Did you examine the books of the company to find when it had a cash balance of $399.68?

A. I expect I did.

Q. When did you find it?

A. I don't remember now.

Q. Don't you know you found it before the date of the completion of the plant?

A. I don't recall. My recollection is it was a cash balance carried from the Martine books into the Wheeler management books.

Q. You say water was turned on Decoration Day 1883?

A. That is shown in some deposition in these cases.

Q. I wish you would look at these so called trial balance
2512½ sheets and say if they were not made out on the date when there was a cash balance of $399.68?

A. The one from which I have secured the data above discussed in the foregoing statement, shows a cash balance of $29.82 and also petty cash $1,114.40.

Q. Don't you know Mr. Nixon that those two sheets must be taken together?

A. They are not.

Q. Then if they are not, they don't make a complete trial balance do they?

A. Yes sir. They are two trial balances.

Q. You mean either one of them separately is a complete trial balance?

A. Yes sir they are two trial balances taken off at different times. The one that I have referred to was the one that was taken off last.

Q. How do you know it was?

A. Because the amount is greater.

Q. I wish you would mark the one you say was taken off last. Now when do you say the trial balance of the one you adopted, what the cash balance was?

A. It shows a cash balance of $29.82.

Q. What date do you assign to that?

A. I don't assign any.

Q. What is the difference between these two trial balances in amount?

A. About $14,000.00. One aggregates $98,000.00 and some odd dollars, and the other $112,000.00 and some odd dollars.

Q. Now look to the Loweree cash book on page 41 and see if you don't find in red ink your cash balance of $29.82 under the head of the month of June 1883?

A. Yes sir I find that the Loweree cash book on page 41 shows that there was a cash balance on hands of $29.82, on June 30th.

Q. Don't that indicate the date at which the so-called trial
2513 balance sheet was prepared?

A. It might do so.

Q. Well don't it?

A. Not absolutely, as the ledger has no cash account on it.

Q. If you dispute the correctness of the entry there as of that date, give me some reason why you dispute it?

A. I don't dispute it but I say it is not entirely conclusive; it is however persuasive.

Q. Isn't it good evidence on the point?

A. Well it is good evidence, but the ledger has no cash account in it.

Q. Well can you take one book from the set without taking all the books?

A. The trial balance is generally made from the ledger without the consideration of any other book.

Q. Doesn't it take the cash balances which appear only in the cash book to make up a trial balance?

A. Well that depends.

Q. What does it depend upon?

A. It depends upon the cash entries in the cash book.

Q. It depends upon whether it is done right don't it?

A. Well either way might be right; different bookkeepers have a different procedure.

Q. You know that there was construction done on this plant after June 29th or 30th 1883?

A. No sir the records having shown that water was turned on about the 30th day of May would indicate there wasn't much more construction, but some more might have been done.

Q. Look at the cash book and see if there wasn't some construction after that date?

A. The cash book shows payments of money after that date.

Q. The trial balance shows payments of money before that date, don't they?

A. I suppose so.

2514 Q. And the cash book shows payments of money after that date?

A. Yes sir but it might have been for work done before a trial balance was made.

Q. If that trial balance shows money paid for construction before or up to the date when it was taken off, whatever that date may be, and that money wasn't paid for construction, the trial balance is false isn't it?

A. No sir the trial balance would be correct as showing the state of the accounts at the time it was taken off.

Q. Don't it purport to show payments and only payments on that side of the sheet?

A. No sir it purports to show the face of the accounts at the time it was taken off.

Q. Is that the way you treated it?

A. Oh I didn't treat it at all; I didn't investigate it or anything of the kind; I simply adopted its suggestions.

Q. Does it purport to show debts of the company in any place?

A. Yes sir I think it does.

Q. Well where?

A. It shows a debt

to Joe Hart	$121.85
to E. F. Fuller	29.86
" Ingersoll & Cocke	395.35
" Chattanooga Foundry & Pipe W	1187.69
" Fred Stone & Company	611.91
" H. O. Nelsen	40.17
" Davidson Steam Pump Co	582.25
" William Kirkup and Sons	557.97
" Geo. W. Ballou & Co	76328.33
" Geo. P. Sheldon	32416.49

which makes an exact aggregate of the accounts on the other side.

Q. You say it owed all those things at that time?

A. No, this trial balance leaves balances to the credit of these parties at that time.

2515 Q. Does it show that all those amounts were due and unpaid or owing and unpaid to the parties you have named?

A. Yes sir it would indicate that the balances stood to the credit of these parties at that time.

Q. Does it indicate that the water company owed that full amount to those people and had not paid it?

A. Not necessarily.

Q. Don't you know as a matter of fact that it didn't owe those amounts you have read off?

A. Well I would say on an assumption that it did owe those things except the Sheldon and Ballou credits.

Q. Don't you know from your examination from the books that it did not owe them?

A. No sir.

Q. Well why did you include the Sheldon and Ballou payments which you knew were not owing along with the other items you read

A. Because they had obtained bonds for their balances; they had $125,000.00 of them.

Q. Now I am going to ask you again if you know the date when this construction was completed?

A. No I don't believe that the records show the date; if they do it has escaped me in my investigations.

Q. I will ask you to assign the nearest date you can to the completion of original construction?

A. That would be a hard thing to do from the data at hand.

Q. I am not asking you to swear to the exact date but I am asking you to fix the date of the entire completion of original construction as nearly as you can?

A. From the evidence that water was turned on on May 30, 1883, Decoration Day, it would be reasonable to assume that original construction had been substantially completed by say July 1st following, and it might have been that the construction had dragged along through several months.

2516 Q. Don't you know that it was not completed until the Fall or winter of 1883?

A. No sir I do not; the entire completion of a plant of that character would be rather indefinite, as they could keep on extending mains and putting in services, &c., and it would be hard to fix the date when it was completed.

Q. Are you willing to admit that it was not completed at the end of June 1883?

A. Well I don't know that I am obligated to any date. I have only assumed that it would be a fair presumption that they would close up the substantial construction in 30 days after they had turned on the water, but this might not have been correct, as there might have been various and sundry reasons for continuing the construc-

tion and stringing it out sometime, particularly if salaries were in sight, with money with which to pay them.

Q. Now Mr. Nixon as indicating whether or not any construction was done after June 30th, I ask your attention to Journal page 29 next to the last entry "sundries to Knoxville Foundry and Machine Company, Pump Station July account $480.19" and will get you to state when the book indicates that that amount was purchased?

A. There is such an entry on the book, page 29, but while this entry would be persuasive and indicative, it is not conclusive that the supplies covered by that account were furnished in July. The account might have been rendered on July 1st, for supplies and materials furnished the previous month.

Q. Don't the entry state it is July account?

A. Yes sir, but it don't state that the items were purchased in July.

Q. Don't the entry immediately above it show that it was for June account?

A. Yes sir there are two entries above showing June account.

2517 Q. Well they are distinguished from the July account are they not?

A. Well they are the same way as the July account. They might have ben rendered on the first days of June and July.

Q. Well you say "they might be"; what do you conclude as to whether they were or not?

A. I could conclude either way. From my experience in such matters it would be as reasonable to conclude one way as the other.

Q. Which way do you conclude as to this item entered in the July account?

A. It is not necessary for me to conclude.

Q. Do you decline to state what your judgment on the point is?

A. Machine shop accounts and machine shop work throughout the month is generally rendered in an account at the end of the month.

Q. Now I ask you if you decline to state your judgment in regard to this $480.19 July account, whether it, as appears from the books, was purchased in July or not?

A. My judgment from the entry is that the account was rendered in July. From my experience in machine shop work the items covered by the account were probably furnished in June.

Q. You state then as your judgment upon this entry of $480.19 that the material was furnished in June and not in July as the books show?

A. I dissent from the conclusion that the books show that the material was furnished in July.

Q. Well what do they show?

A. They show that the account was denominated "July account."

Q. When was the account rendered?

A. That is not clear.

Q. When was it entered on the book?

A. In August, the date not clearly indicated.

Q. The June accounts were also rendered in August, were they not.

A. They appear so.

2518 Q. Can you suggest any reason why one should be called June account and another July account, when all three were entered in August?

A. None, unless the account was indicated in that way.

Q. Do you allow the engineer's salary as part of construction expenses?—I mean the Civil Engineer, Mr. Fuller?

A. In my estimate of the cost of this construction his salary, or the amount that was paid him being $1,856.50 was treated as a part of the cost of construction.

Q. Now what period does that $1,856.50 cover?

A. I don't recall; the books will show.

Q. When did it start?

A. I don't recall that either.

Q. I wish you would find out and let me know?

A. The first charge on the books to Mr. Fuller, the engineer, was on August 12th 1882. The last charge is on January 31, 1884, $11.50 which says "in full, per check #913."

Q. Did you allow his salary in the estimate of construction cost down to January 1st 1884?

A. Yes sir.

Q. Is that covered in this trial balance from August 1882 to January 1884?

A. I don't know.

Q. I wish you would look and see?

A. I don't know, as this trial balance was not my estimate of construction entirely. (Witness refers to balance Sh-) Yes there is a balance of $50.00 on this trial balance to the credit of Mr. Fuller.

Q. Does that cover his salary down to January 1884?

A. I have no idea.

Q. Or down to the date of this trial balance sheet?

A. I should assume it was down to the date of that trial balance.

Q. Do you take it to be possible that this trial balance is to be assigned to the date of January 1st, 1884?

2519 A. I hardly think it probable.

Q. Why did you allow Mr. Fuller's salary down to January 1st 1884 in your cost of original construction; wasn't it because you treated original construction as extending to January 1st, 1884?

A. I didn't pay any attention to the extent of term covered, but to the amount of engineering necessarily incurred in the construction.

Q. Then if Mr. Fuller's salary was in part paid after original construction, you have been making a mistake about it, hav-n't you?

A. No sir, I had the entire amount in the construction estimate I made.

Q. If you allowed Mr. Fuller a salary on construction account down to January 1st, 1884, how are you going to cut off the other construction items prior to January 1st, 1884?

A. Oh he might have been paid on for a longer time after construction was completed.

Q. Well that would be construction items, wouldn't it?

A. It might and might not; it might be construction items during construction times and the payments could be continued, or he could have been retained on salary for a longer time. In my estimate of total cost of original construction, I included his total pay.

Q. Why did you include it?

A. Because it was for engineering and supervision, which would be an item of cost incident to original construction.

Q. Suppose it extended after original construction was completed?

A. Well it appears I included it anyway.

Q. Well didn't you include it because it was a part of the original construction account?

A. I thought so, as I have answered in a previous reply.

Q. Now as that salary extends to January 1st, 1884, ar-n't you bound to admit that you treated original construction as ex-
2520 tending to January 1st, 1884?

A. Oh I wouldn't attempt to fix any date at which the construction was accomplished. I was after the amount of the construction cost more so than the date on which construction was completed.

Q. Don't you admit now that you treated it as extending to January 1st, 1884?

A. No I don't admit now that I made any treatment of this part of the question.

Q. Well then explain to me why you allow Fuller's salary in a construction account to be paid down to January 1st, 1884?

A. Because I allowed his entire salary without regard to what time it extended, as a proper element of construction cost.

Q. Then so much of Fuller's salary, if any, as was paid after the date of this trial balance sheet that you have adopted, does not belong to construction account, does it?

A. That might be possible.

Q. Well then why did you put it in?

A. Because it was a proper element to go in.

Q. Then if construction was completed in July 1883 there should be added to your estimate of construction the amount of Fuller's salary from that date to January 1st, 1884?

A. No sir, because I had included his full salary in my estimate.

Q. Now having treated Mr. Fuller's salary as a part of construction expenses and extending down to January 1st, 1884, can you cut short the other construction items before January 1st, 1884?

A. Mr. Fuller being an engineer and supervisor of the work could reasonably have been retained after completion of construction, making maps and drawings and furnishing other information and equipment that would be necessary to the operation of the plant,
2521 and his services would not be in line with the foreman of excavation work on the reservoir, or the labor employed in the engine pits and other work of that character that was completed.

Q. Have not you, in your estimate of construction cost treated

Janaury the 1st, 1884, as the date when construction was completed?

A. I don't think I have paid any attention to the date when construction was commenced or completed. I have given more regard to the cost of construction.

Q. To what date did you allow Mr. Loweree's salary?

A. I think the amount of salary allowed to Mr. Loweree, the alleged contractor was $1667.75.

Q. To what date would that bring his salary?

A. I will refer to the book and endeavor to ascertain to what date that would reach, as I paid no attention to the matter before. The payments to Mr. Loweree to June 23rd, aggregated $1667.75 which was the amount shown on the estimate of construction cost.

Q. Whose estimate?

A. On the one I attempted to formulate from the data at hand.

Q. Where is that estimate, have you got it here?

A. Yes sir I gave it to you back in my deposition a day or two ago.

Q. Have you got an itemized statement of this original construction and operating table?

A. No sir not entirely. I have it in a general way. I have the accounts of purchases that make it up in itemized form.

Q. Now Mr. Nixon in going over the items in Pump Station Labor account you have allowed one of September 8, 1883 for $1.00, one of October 25th, 1883, $208.80 and one of $3.00 which appears to January the 12th 1884, did you not?

A. I cannot tell about the small items. I think the $208.80, being a purchase from Rourke, was included in my estimate of that
2522 part of the construction.

Q. Well those were all items after the 30th of June when that balance of $29.82 shown on your trial balance sheet occurred?

A. I don't know whether they are or not. They are entered on the book as of a later date. That item of $208.80 appears to have been charged to Pump Station at a later date; when it was purchased, or the material furnished, I cannot say.

Q. Please look at cash book page 67 and see when that item of $3.00 appears to have come into the books?

A. On page 67 there is a charge to Pump Station of $3.00.

Q. Of what date?

A. Of date January 23, 1884, but I am not certain that this amount is included in the estimated cost of Pump Station which I furnished.

Q. Why, you so testified yesterday, didn't you?

A. I don't think so; I don't think I said I included it though I might have done so.

Q. See if this is not in your deposition of yesterday, cash book page 67 January 12, 1884, $3.00?

A. Yes sir, I take it back, it is there.

Q. Then you have allowed a construction item in January 1884?

A. Yes sir.

Q. And properly so allowed it?

A. Yes sir.

Q. Now did you not yesterday in your statement of cash items in Pump Station material allow (Journal page 33) $289.34, October 25th, 1883; (Journal page 34) $18.49, October 25th, 1883; (Cash book p. 59) November 17th 1883, $31.30; Journal page 37, $10.00, December 31, 1883 and Journal page 38 $37.20, December 31, 1883?

A. Yes sir I stated that these amounts were included in the estimate except the $18.49 and that I stated was omitted, but was no doubt proper, being some fittings bought from Mr. Rourke.

2523 Q. What date do the books show for these items, the ones I have read out to you?

A. I don't know; I never paid any attention to them.

Q. I ask you now what dates they show?

A. The $289.34 item is credited on the books to Mr. Rourke on the 25th day of October per bill rendered; it don't give the date. The item of $18.49 that I had not included is credited to Mr. Rourke on the books of the Water Company on October 25th and says it was for work on September 8. The cash item of $31.30 cash book page 59 is charged on November 17th, "C. Kurth's bill in part" and material to "Cullen and N." The item of $10.00 is credited to the Davidson Steam Pump Company on December 31, which states it is for their bill of December 13th, which is evidently for some repairing. On page 38 the item of $37.20 is credited on the 31st of December to Geo. P. Sheldon, Esq., for part of Chapman White Lyons and Company's 30 day draft, $37.20.

Q. Referring more especially to the item of $18.49, Journal page 34, I ask you if it does not appear in express words on that page of the Journal that the work for which that money was paid was done September the 8th, 1883?

A. That is what I stated in my previous answer.

Q. And you have allowed that as a cash item in construction account?

A. I had not allowed it, but I stated I thought it was proper to allow.

Q. Then you do admit that original construction extended past September 8th, 1883?

A. I have paid no attention to the dates. I haven't limited the construction as to time; my efforts were more with regard to the amount and cost. These items however might have been original construction, and might have been repairs.

Q. Well you treated it yesterday as original construction work, didn't you?

A. No sir I hadn't included it, but expressed my willingness to do so. As the amount is small I am willing to accept it either

2524 way, after hearing the articles mentioned applicable to the Pump Station, though it could have been repairs, or could have been construction.

Q. Now I ask you to hand to the stenographer the pencil memorandum called "trial balance sheet" by you, and ask you to file the same as an exhibit to your deposition, and as it is a pencil memorandum I desire to have it copied into your deposition?

A. I herewith file the same as Exhibit "B" to my deposition as it is a valuable suggestion made, and it is as follows:

	Dr.	Cr.
Cash account	$29.82	
Pump Station Labor account	4080.94	
" " Material	23725.76	
Street Labor account	5896.77	
" " material	40731.25	
Reservoir Labor account	6169.58	
" Material	3686.93	
Construction account	6617.03	
Real Estate	7800.00	
Petty Cash	1114.40	
Joe Hart		$21.85
F. M. Loweree	1667.75	
Wm. Jowitt	30.00	
E. F. Fuller	50.00	
Hugh L. McClung		29.96
Ingersoll & Cocke		395.35
Chatt. Fndy. & Pipe W-rks		1187.69
Fred Stone & Company		611.91
H. O. Nelson		40.17
Force Main material	5384.28	
" " labor	865.10	
Geo. Wm. Ballou		76328.33
Knoxville Fndy. & Mch. Co	10.00	
2525 Geo. P. Sheldon		32416.49
J. B. Clotworthy	29.55	
Service material	3119.66	
Davidson Steam Pump Co		582.25
Wm. Kirkup & Son		557.97
J. A. Newman	275.00	
H. O. Nelson	215.90	
Knoxville Gas Light Co	305.80	
Edington & McMullen	250.00	
M. F. Rourke	150.00	
Knoxville Water Co	66.45	

Q. I ask you now to give to the stenographer the items, dates and pages on the books of the company which you treat as entering into the reservoir account, but before doing that I will ask you to state what you now make your total cost of Reservoir Construction from the books of the company?

A. As before stated the cost of the Reservoir as indicated by this trial balance would be $9,846.51.

Q. To what date?

A. I don't know.

Q. Do you think that statement is of any value without knowing to what date it extends?

A. Yes sir it would be of value taken in connection with other facts, the strongest of which is that the reasonable cost of the reservoir couldn't have much exceeded that amount, the excavation *ah*ving only cost $1233.00 and the paving and concrete at high rates couldn't have made a total much in excess of this amount of $9846.51.

Q. Well give the items and dates, &c. which I called for?
A. There are charges on the books to reservoir account as paid to

Joe Hart, Journal pages 36, 38	$231.00
E. F. Fuller, Journal pages 36 38	300.00
To Western Cement Co. pages 35, 36, 37	1023.20
2526 M. F. Rourke, page 33	3.12
Knoxville Foundry and Machine Co. page 31, 36	26.57
J. B. Clotworthy page 32	2.50
H. O. Nelson page 28	13.25
J. A. Newman page 25	473.48
Chattanooga Foundry & Pipe Works pp. 13, 33, 37	70.37
H. L. McClung, Jr., pp. 13, 20, 24, 26	234.45
W. C. Fulcher, pp. 12, 13, 18, 25, 35	4869.00
Wm. Posten, pp. 7, 14	470.70
C. H. Stiveley, pp. 21	84.44
Lawson Irwin, pp. 1, 18	1233.76
W. E. Wardrep, pp. 15	41.50
Geo. P. Sheldon, p. 38	1210.40
Rock Crusher, pp. 80, 84	901.60
Making total charges on Journal to these accounts...	$11247.75

And cash items on Cash book pages 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 37, 39, 43, 45, 47, 49, 51, 55, 57, 59, 61, 63, 65, and 67 to Reservoir account labor, aggregating $8424.47.

And to Reservoir material, Cash book pages 5, 7, 9, 11, 15, 17, 21, 29, 33, 41, 43, 45, 49, 51, 55, 57, 59, 61, 63, 65 and 67 aggregating $4174.18 making total charges, less $339.70 of credits to that account $23506.70.

The balances carried forward to the new ledger of these accounts aggregate $23329.20.

Q. Now is that statement you have just rendered taken from the books?
A. Yes sir these are the charges on the books.
Q. Now which of these charges on the books do you say are incorrect?
A. Which particular charge?
Q. Yes sir?
A. I have no means of knowing.
Q. Did you examine the items as you did in the case of the Pump Station?
2527 A. I don't recall. I took off the amounts. The amount is so ridiculously out of proportion or accordance with the practical cost of the reservoir that it couldn't be endorsed by anybody.
Q. Did you say "practical" or actual?
A. I said practical.
Q. Have you examined the Reservoir account in the books?
A. Yes sir I took these amounts from the book and can give you the pages if you desire. I did this in response to your last question yesterday afternoon.
Q. I see that after each item in debit column of Reservoir labor

account pages 1 and 7 and page 38 of the ledger you have put a check mark and after each item of the debit column of Reservoir material account on pages 8, 37 and 84 you have put a check mark. That shows that you have examined and found these amounts there and checked them?

A. Yes sir these are my check marks indicating where I took these amounts off to add them up to secure the aggregates I have given you above.

Q. Now when you made up your reservoir estimate I understand you didn't look to the books at all?

A. No I didn't regard these grossly excessive charges on the books in making up the cost of the reservoir, the data I used from the books being the amounts indicated by the trial balance with some cash item additions.

Q. Please look to cash book and journal as I shall call amounts off to you under the head of reservoir labor account and say whether or not the following items properly enter into the account of Reservoir construction, and also whether you have allowed these amounts in making up your Reservoir construction cost, and whether you allow them now, and if you reject any of them I will ask you
2528 to give me the reasons why. Look at cash book page 3, August 12, 1882, #37.37?

A. On page 3 of the cash book of date August 12, I find a charge to Reservoir account labor $37.37. This amount is carried forward into the aggregate of Reservoir account on the books, but whether it properly enters into Reservoir construction I am unable to say as I am not able to trace this transaction. I have not made any allowance of particular amounts in making up the construction cost, as I only made a division of the construction cost, or a division or apportionment of construction cost of Reservoir so as to reach the aggregate construction cost of the original plant of $112,000.00, and never having made any allowance in the first place, cannot make any allowance now, and if rejecting, would reject the entire account as the amount is so incompatible with the practical cost of the reservoir.

Q. Now I understand Mr. Nixon that the answer which you have given as to this item, you will apply to every item in the account of Reservoir labor, and also to every item in the account of Reservoir material?

A. I would.

Q. In regard to the Pump Station, you said yesterday you had examined the cash items going into that account as I now recollect?

A. I examined the charges on the books of cash items.

Q. And you are able to testify whether or not those cash items in Pump Station account are correct?

A. Oh no, only my assumption.

Q. Did you examine in the same manner and to the same extent the cash items going into Reservoir account?

A. Yes sir I examined the charges, and took them off to make the addition you requested yesterday.

Q. Did you do so to the same extent that you examined cash items in Pump Station account?

A. I assume that I did.

2529 Q. But, as I understand you, you are not prepared to say as you were in Pump Station account whether you accept or reject any of these cash items in Reservoir account?

A. No, the Reservoir account is so grossly out of proportion that I would not undertake to adopt the charges, as from some information I have received, that Reservoir was a continued story, and was built and re-built and experimented with, and was a subject of considerable attention, and I would not, therefore, undertake to make even an approximate distribution of the expenditures charged for its construction.

Q. From your examination of the Reservoir account in the books, do you undertake to say that any of the items entering into it are fraudulent entries?

A. No, I have no means of supporting myself in a charge of that kind, and would not undertake to make it.

Q. You say that the reservoir was "built" and "rebuilt?"

A. So I have been told.

Q. Who told you that?

A. It is a source of general information in Knoxville; most every other one you talk with here would tell you that.

Q. Well give me the names of two or three you remember of saying that?

A. The most definite information I think I obtained on this subject was from Colonel Martine, who explained the diffculties of the construction that he encountered when he came here to superintend the Company.

Q. Did he say it was rebuilt?

A. He said he did a lot of work on it in order to make it hold water.

Q. Did he use the word "rebuilt?"

A. I don't know that he said "rebuilt." He might have said repaired, rebottomed or renewed; I don't recall his exact words.

Q. Who else made that statement to you?

2530 A. I don't know whether I can recall. I think Mr. Munding said he was here at the time that the reservoir was being reworked on, but various and sundry parties in Knoxville have explained this trouble with the reservoir and I heard of it at the time myself being at Knoxville off and on then.

Q. Then do you undertake to say that any of the items entering into this reservoir account don't represent actual expenditures in building or repairing the reservoir?

A. Oh no I don't undertake to say any such thing.

Q. But your position is that you allowed nothing for anything except the absolute original construction?

A. That would be my position in prorating the cost of the different parts of the original construction as I couldn't continue to rebuild and repair parts of it with the funds that were available after the same were exhausted.

Q. You don't then, from your examination of the books, undertake to impeach them by saying that they show anything as expended on reservoir which was not really expended for construction or repairs?

A. No I wouldn't impeach them in that way but by another method.

Q. Now in making your apportionment, as you call it, of construction costs, what was the principle upon which you made that apportionment?

A. I didn't follow any definite or set principle.

Q. Did you assign prices to different accounts arbitrarily?

A. No I grouped the costs as shown by the books of some of the different elements so as to make a division of costs aggregating $112,000.00, made up of the proportionate amounts as set out in statement reported of this cost of original construction, some of it arbitrarily, but mostly following the amounts indicated
2531 from the books and from the trial balance of same and such other information as could be secured.

Q. You have made an arbitrary assignment of price in the case of the reservoir?

A. More arbitrary than in any other part of the work, but not entirely arbitrary in this instance.

Q. What reason then did you have for making this particular price on the reservoir?

A. Because the amounts charged on the books was so excessive and so far in excess of the practical cost.

Q. How did you reach the exact amount of $10,000.00, or a reduction of two thirds?

A. I didn't reach the exact amount of $10,000.00.

Q. Well how did you reach the amount that you did reach?

A. I reached $9,846.51 from the showing of the trial balance and the additions thereto I seemed to have reached by the additions of cash items that I don't recall at present—the amount fixed in the statement being $10,106.51 which is certainly ample to have covered the cost of the construction, as it was very simple and I might say only included three elements of work, excavation and paving. with concrete and brick, about 10,000 cubic yards of excavation and about 5,100 square feet of paving.

Q. Now you made that apportionment out of the total cash that had come into the company's treasury did you?

A. That part of the construction cost goes to make up the total expenditure of funds that came into the treasury.

Q. But you first concluded that the company had received $112,271.97 cash and then you proceeded to apportion that among the different items of construction cost, didn't you?

A. No I first ascertained the amount of money that had gone to make up this construction, and then made an experimental apportionment of the same in accordance with the charges
2532 and records available for a division of this construction cost among the various items going to make up the same.

Q. Then your process of reasoning was as the total amount of

cash was so much that a particular proportion thereof should be assigned to each item of construction cost?

A. No not strictly. I was guided more in this apportionment by the charges than I was as to what would have been proper to expend under each head.

Q. By what charges?

A. By the charges on the books to these varaious departments of the work.

Q. Now you stick to that, that you were actuated in a large measure by the charges on the books?

A. Except in the instance of the reservoir, I didn't follow that so closely.

Q. The total amount of cash that you allowed to have come into the treasury of the company is $112,271.97?

A. It could have been as low as $110,000.00.

Q. But you adopted the figure I have named, didn't you?

A. I adopted the larger figure to be liberal.

Q. And that is made up of amounts derived as follows: G. W. Ballou and company $76,328.33; Geo. P. Sheldon $32,416.49; sundry other accounts $3,527.15?

A. That is as from the showing of the trial balance referred to.

Q. Well you adopted that as correct didn't you?

A. No, I found some variations from that by further investigation. I found credits from the cash book to G. W. Ballou and company of $75,794.67 and to Geo. P. Sheldon credits for payments and drafts credited to him of $45,719.12, making $121,513.79; and I found other receipts from the books amounting to $903.27, which would make a total aggregate of $122,417.06 from which I find that
2533 coupons on bonds were paid off amounting to $9,500.00, and interest on same, or something else amounting to $990.00, and interest charged and credited to Mr. Sheldon of $1,041.53, making $11,531.53, which deducted from the above $122,417.06 leaves as going into the construction of the plant $110,885.53. I have traced payments of cash as going into the plant from the cash book amounting to $106,170.80 and have found credits off of those charges amounting to $9,280.78, leaving $97,890.02, and payments by drafts by Mr. Sheldon in favor of various parties and accounts amounting to $12,136.00 which added to the above $97,890.02 makes, as going into the plant again $110,026.02, which is all in substantial accord with the sworn statement of the engineer that the plant cost about $100,000.00, and the previous bid on the work that it could be constructed for $95,000.00 by R. D. Wood and company, and it is also in close accord with the deposition of Mr. Wheeler as to the cost of this construction.

Q. Well, now, Mr. Nixon, after all that you have said, when I cross examined you about the amount of cash that you say had gone into this plant, am I to take it that that amount was $112,271.97?

A. I have given it to you both ways and you may take your choice. I adopted the larger amount as before stated, that is, to-wit: $112,271.97 to be liberal.

Q. That is what you say is the amount of cash that went into this plant?

A. That amount might have gone in, which appears to be the utmost that could have gone in unless they got some money somewhere else not shown on the books or in the history of the organization and construction of the water works.

Q. Are you declining to say that this is the exact amount that — estimated to go in, in order that I might not have a fixed
2534 basis to examine you on?

A. Oh, no, I give you what I find, and allow you to adopt either amount that you see proper.

Q. Then you are not certain yourself?

A. No, I am not certain except that it couldn't have exceeded that amount, which appears conclusive.

Q. Now give me the date to which you assign the amount of cash that went into this plant according to your deposition?

A. I hav-n't fixed any date.

Q. Well, I will ask you to fix it now?

A. I will say that it is between the dates covered by these Loweree books.

Q. I will ask you to fix the date when this completed sum entered into this business?

A. The only way I could do this would be to find the last credit of cash on the cash book as it commences in 1882. It includes all the construction, as I understand it, shown on these books.

Q. On what books?

A. On the Loweree or construction books of the Water Company. The first credit on that book is dated July 7th, 1882, crediting G. W. Ballou and company with $1,010.00.

Q. What is the last one?

A. The last credit of cash received from the business appears to be December 29, 1883, to Geo. P. Sheldon for proceeds of a 20 day draft for $1100.00 which is credited up at $1092.25. There is another, or a couple of other amounts after that of the Knoxville Water Company, but these I take it are not amounts entering into this business.

Q. What is the date of the last entry on that cash book?

A. The date of the last payment is January 27th, to F. M. Loweree from the company's money $125.50, and the date of the last credit is January 31st, 1884, Knoxville Water Company for "overdrawn" $42.61, which balances the cash book the wrong way.

2535 Q. Now then your statement of the amount of cash that went in covers all the cash received according to the Loweree books? Sheldon

A. Yes, sir, which I have shown came from Ballou and Loweree and $903.27 from other sources.

Q. Mr. Nixon, I want you to give the stenographer a statement, item by item of the cash received into this company from Geo. P. Sheldon and I ask also for a statement of the amount of cash received into this business from Geo. W. Ballou. Please understand

that I don't ask for anything except the amounts of cash received into this business from Sheldon and the bills of the company paid by Sheldon, and the amounts of cash received into the business from Ballou, and be kind enough to present *to* same on tomorrow morning, confining your answer to the things I ask for?

The further taking of this deposition was adjourned until Saturday Morning, October 24th, 1903, at 9:00 o'clock A. M.

2536 SATURDAY MORNING, *October 24th*, 1903.

Continuation of cross-examination of W. M. NIXON, J. W. Caldwell continuing to cross-examine the witness.

Q. Mr. Nixon, did you find those things I asked you to insert in your deposition being the mixture of the accounts of 1896 and 1897 at the close of the year 1900?

A. No, sir, I hav-n't had time to look for them yet.

Q. Or any of the other items I asked you about——

A. No, sir, nor the statement of the Pipe market neither.

Q. I want you to remember also that you were to examine the record in the case in which you found Mr. Nicholson's deposition to see whether or not he was a civil engineer, and also whether he measured that pipe or not?

A. I hav-n't been able to find the deposition in which that is contained. The last I saw of it was on the table at one of the hearings in the United States Court Room.

Q. I will now ask you to answer the last question propounded to you on yesterday?

A. In answer to the last question on yesterday, I present the account of G. W. Ballou and Company as taken from the water company's books——

Q. I don't wish the accounts of Ballou and Sheldon; I wish simply a statement of the amounts of money that came into this business from them and the bills paid for the company by them respectively, and not the statement on the other side of the account?

A. The account comprises a considerable amount of money and other credits and also a considerable amount in withdrawals, the net amount only which appears to have gone into the company,
2537 and it would be impossible to separate it without taking the whole account, as you couldn't pick out a part of it and secure a correct result.

Q. Well, I am not asking for anything except what they put into the business in cash or in paying bills of the company. Any withdrawals or charges on the other side of the account, we will take up later?

A. Well, then I would give you the net amount that went into the company.

Q. Well, I want it by items?

A. From Messrs. G. W. Ballou and Company, the amount of cash going into the construction of the plant is $59,450.00.

Q. Well, now give us the details of it, please?

A. The details of which are as follows:

By cash per Cash book, page 2	$15,010.00
" 4	10,000.00
" 8	10,500.00
" 12	11,500.00
" 14	3,000.00
" 16	3,500.00
" 18	7,500.00
" 20	2,000.00
" 22	7,800.00
" 24	2,496.67
" 26	1,500.00
Making a total of	$74,806.67

and other credits——

Q. I am not asking about other credits, but give us now the Sheldon account?

A. Well, I cannot arrive at the net amount of this account unless I give the other credits and withdrawals so as to show the net amount.

Q. I am not asking for the net amount, but for the
2538 money that went into this business from Sheldon, and the bills that Sheldon paid?

A. Well, the foregoing statement is disclosing only part of the facts and will not correctly show the amount of money that went into the plant from Messrs. Ballou and Company.

Q. I don't care to argue the question with you, Mr. Nixon, but will ask you to present the items that I call for?

COMMISSIONER: Are the items there on the list?

WITNESS: I have already given him a part of the items from Ballou and Company but the credits and withdrawals he don't want.

COMMISSIONER: What is it you desire, Mr. Caldwell?

Mr. CALDWELL: I want the items where Sheldon has paid any money for the company or paid any bills for the company, and the witness insists on giving certain withdrawals that I don't want, and irrespective of what he says I am entitled to have the question answered I think.

COMMISSIONER: Give the amounts which Sheldon has paid in and you will be permitted afterwards to say that such and such are offsets against such, if it so appears.

WITNESS: That is what I intended to do, but he didn't want that.

Mr. CALDWELL: We don't object to his stating that afterwards.

A. The foregoing amounts are in response to your question, but it is not the net amount going from Ballou and company into the plant of the Knoxville Water Company, there being other amounts of credits and withdrawals which I have not given. Now I will give you the amounts of cash from Geo. P. Sheldon as shown by the Cash book and credited to his account:

2539	Cash book page	16	$1,500.00
	"	22	9,921.20
	"	26	1,988.00
	"	28	2,974.06
	"	30	1,989.73
	"	32	2,980.33
	"	34	990.83
	"	36	3,476.85
	"	38	495.29
	"	40	2,500.00
	"	42	1,500.00
	"	44	1,800.00
	"	46	1,900.00
	"	48	1,000.00
	"	50	2,050.00
	"	52	200.00
	"	54	1,500.00
	"	56	800.00
	"	58	1,700.00
	"	60	600.00
	"	62	3,747.88
	"	64	1,092.95

the total of the foregoing items being..... $46,707.12

which does not represent the net amount however going into the plant from Mr. Sheldon, there being other credits as follows, being payment of bills of the Water Company by drafts by Mr. Sheldon in favor of the Davidson Steam Pump Company, one draft for, $3000.00.

Q. Journal page 20, is that?

A. I don't believe I have got the page.

It is a 60 day draft on April 14th.

And on June 5th another draft in favor of the

2540 same company for $2000.00

And on January 7th a 90 day draft in favor of the same company for..... 807.30

And a 30 day draft in favor of the Knoxville Foundry and Machine Company for..... 500.00

A 30 day draft in favor of Fred Stone and Co. for.... 611.91

A 30 day draft in favor of Gamwell Fire Alarm Co..... 1399.37

A 30 day draft in favor of Webb & McClung for..... 250.00

" " " " " " " W. C. Fulcher " 200.00

" " " " " " " S. B. Luttrell " 374.34

Sanford, Chamberlain & Albers..... 467.19

Western Cement Company..... 258.80

Chapman, White & Lyons..... 610.88

90 day draft in favor Chattanooga Pipe & F'dry W'ks.. 1175.26

60 day draft in favor of Ingersoll & Cocke..... 250.35

30 day draft in favor of S. B. Luttrell & Co. *et al*..... 230.60

Making a total of these payments by these drafts. $12136.00

Q. Now I wish you would put into the record the aggregate of the $74806.67 from Ballou, $46707.12 from Sheldon and $12136.00 bills paid by Sheldon?

A. The aggregate of these amounts is $133649.79.

Q. $133649.79?

A. Yes sir.

Q. Now I ask you if there is any instance shown on these books where either Ballou or Sheldon received any cash from the Knoxville Water Company?

A. Yes sir there are charges in the Cash book against this account of ——

Q. I am not asking what the Cash book aggregates, but I am asking if there is any instance shown on these books where either Ballou or Sheldon received any cash money from the Knoxville Water Company?

2541 A. Yes sir there are charges on the Cash book to these gentlemen, and I will show you the page and items if necessary and give you the details which reduces the foregoing amounts.

Q. Well give us those items of cash they got?

A. On page 23 of the Cash book at the bottom, Mr. Sheldon is charged with $2500.00, and another $2500.00, and with $3500.00 and $1421.20, and G. W. Ballou and company charged with $4000.00, making an aggregate of $13921.20, which entry appears to correct or balance the charges on the other side of the account aggregating the grand total given to you in reply to a previous question and which reduces the total to $119728.59.

Q. Now see if each of those items does not appear to be a draft at a certain number of days in advance?

A. Yes sir that is a fact.

Q. It is not cash then, is it?

A. No sir, but it is credited on the other side of the account as cash and these entries are made to correct the other side of the account and show the true result.

Q. Now look at Journal page 17 and see if it does not appear that those were drafts given to Sheldon and Ballou, which drafts were paid to the Davidson Pump Company and the Chattanooga Iron and Pipe Works and to Fred Stone and Company?

A. They are, and are included in the previous grand total.

Q. So that the entries made upon the Cash book and Journal simply balance each other?

A. Yes sir these entries are made to correct these charges.

Q. They don't represent entries on the cash book, or don't represent any cash money paid to Mr. Sheldon or Mr. Ballou do they?

2542 A. No sir these charges were passed through the Cash book as cash.

Q. But they were not cash, were they?

A. No sir they were drafts.

Q. And those drafts were delivered by Sheldon and Ballou to these manufacturing establishments shown on page 17 of the Journal were they not?

A. I presume so.

Q. Now are there any other items where you say cash passed back from Ballou and Sheldon?

A. Yes sir Ballou and Sheldon are charged on the books. Ballou is charged with withdrawals amounting to $37829.54.

Q. That amount of cash on the books?

A. No that amount of charge against his credits on the books.

Q. Don't you understand my questions go exclusively to the question of any payments of Ballou or Sheldon in cash by the Knoxville Water Company?

A. You were just asking in regard to the draft business?

Q. No, you have been confining yourself to the draft business; I asked you about cash?

A. I can give you the items that Mr. Ballou is charged with on the books in his account.

Q. My question is does this $37829.54 represent cash paid Mr. Ballou by the Knoxville Water Company?

A. I don't think it is on the cash book; I think it is charged to him through the journal.

Q. My question is does it represent money paid by the Knoxville Water Company to Ballou?

A. Oh yes sir it represents that amount of money.

2543 Q. Paid by the Knoxville Water Company to Ballou?

A. He is charged with that amount, which is in effect the same as if paid to him.

Q. Do you say the Knoxville Water Company paid him that amount of money?

A. The Knoxville Water Company charged him with that amount on the accounts.

Q. I asked you whether the Knoxville Water Company paid him that money?

A. It evidently did in the final result as his account is closed in full settlement.

Q. Don't you know that that does not represent a cash transaction between the Knoxville Water Company and Ballou?

A. Oh I don't know that it represents that the money was actually handled, but the books show that the Water Company charged his account with that amount, and the effect is a withdrawal to that extent from the treasury of the company.

Q. Does it represent a payment by the Knoxville Water Company to Ballou?

A. While it may not represent the actual handling of that amount of cash, it represents, and is in effect a payment of that amount.

Q. By whom?

A. By the Water Company, as he is charged on the debit side of the account of G. W. Ballou and Company with that amount.

Q. Now Mr. Nixon don't you know that those payments were made by Sheldon to Ballou?

A. No sir I don't know anything except what the books show, and it don't make any difference if it was, as Sheldon was running the water company at that time.

Mr. CALDWELL: I will ask the court to strike out the last voluntary statement made by the witness.

2544 COMMISSIONER: I will not strike it out as I would rather stick to the language of the witness unless I can see that it does some harm.

Q. What is the first item making up this amount of $37829.54?

A. The first amount "to expense, $10.00."

Q. Where is that?

A. Refer to Mr. Ballou's account on the ledger and you will find it. "Expense $10.00—and $4000.00 settled through Sheldon in bonds" &c.

Q. Now do you say that was a cash payment from the Knoxville Water Company to Ballou?

A. I don't say that the cash was actually handled but it is in effect a payment.

Q. Do you say that the Knoxville Water Company paid it to Ballou directly?

A. Directly or indirectly, it is charged to his account.

Q. Don't it show that Sheldon paid it?

A. No, the item says "Construction account for balance of check July 27, 1882 not claimed by them in their account rendered and settled by Sheldon in bonds, &c., $4000.00."

Q. Now you say that $10.00 was paid directly to Ballou?

A. He is charged with it on exchange accounts to checks.

COMMISSIONER: Is that expense item posted to Ballou's Account?

A. Yes sir.

Q. Give us the next item?

A. The next item is what is left of a mutilated entry on page 41 and says "Ballou and Company, Dr. to sundries $93269.54. To Water Works bonds for net proceeds of bonds sold by them as per their account rendered July 9th 1884; $59450.00 to Geo. P. Sheldon for amounts of money received from him at different times as per their account rendered" and something scratched out "$29801.21 also part of amount advanced on July 27, 1882 ($1010.00) as per account rendered" scratched out and two ciphers left, besides

2545 errors in entries October 11th, 1882, scratched out and two ciphers left and on November 11th 1882, scratched out and two ciphers left and on February 10th, 1883 and March 16th 1883, $4018.33, which makes a total payment of $33819.54.

Q. Now do you say that represents payments made directly by the Water Company to either Ballou or Sheldon?

A. Yes sir it is in effect payments.

Q. The result of the transactions which you have just been reading from Journal page 41 is $33819.54 isn't it?

A. The aggregate of those charges leaves a net charge against Ballou and company of $33819.54.

Q. Now don't you know that from these books Sheldon simply paid that amount to Ballou?

A. I know nothing except what I find on the books. I have gone

through this account thoroughly to ascertain the net amount from Ballou and Company going into the construction of this plant.

Q. Isn't it a fact that Sheldon and Ballou received from the Water Company the proceeds of certain bonds sold by them respectively and the amounts turned in by them to the Water Company are represented by your statement above, Cash from Ballou $74806.67, and from Sheldon $46707.12, and that Sheldon paid bills of the Water Company amounting to $12136.00, and that then Sheldon and Ballou made a settlement between themselves, and that settlement in whole or in part, as between these two individuals, appears upon these books?

A. Yes sir the books disclose that these parties, Geo. P. Sheldon and G. W. Ballou and Company appear to have received or handled the first issue of Water Works bonds, and after going through these accounts the net result is that $121850.00 of the proceeds of bonds went into the construction of the plant less about $10,000 charged off for interest and discount.

2546 Q. Now you say that $121513.79 proceeds of bonds went into this plant?

A. It was $121850.00.

Q. Now when the books were closed didn't the company owe Mr. Sheldon $20292.82?

A. Yes sir he carried a credit to his account derived from these amounts you have excluded forward to the Martine ledger.

Q. Isn't that $20292.82 in addition to proceeds of the sale of the bonds?

A. No sir it is not.

Q. You are positive about that?

A. I am. I would say if you will allow me to furnish an analysis of the accounts it will convince you of that fact readily.

Q. I am coming to that question, but if you are so eager to furnish it, you may furnish it now?

A. It is as follows:

G. W. Ballou & Company, cash credits	$74806.67
Other credits	22472.87
Total credits	$97279.54
Deduct withdrawals	37829.54
Leaving going into the plant the exact amount of bonds charged on the account, being	$59450.00
Geo. P. Sheldon's account, cash credits	46707.12
Credits for payments by drafts above recited	12136.00
Other credits amounting to	44899.82
Making a total of credits	$103742.94

Less withdrawals	$21050.12	
And credit balance carried to new ledger	20292.82	
Making a total of		41342.94
Which deducted from Mr. Sheldon's total credits leaves as going into the plant		$62400.00
The exact amount of bonds with which his amount is charged; the total amount as before stated realized by the company from these bonds being		$121850.00

Q. Now I want you to show me where the $20292.82 due Mr. Sheldon when these books were closed, was paid?

A. He carried it into the other books.

Q. Well I want you to show me how it was paid?

A. It was not paid until the next administration; it was outstanding; it didn't represent cash, it represented credits to his account of charges to Ballou and Company.

COMMISSIONER: What was the nature of the charges?

Mr. CALDWELL: Yes, give us the way that $20292.82 was made up?

WITNESS: That is the balance remaining after deducting withdrawals of total credits to the account of Geo. P. Sheldon.

Q. Isn't it made up of the amounts appearing on page 36 of the Ledger?

A. Yes sir, Sheldon has a credit here on this account of $33819.54 and $10980.08.

Q. I didn't ask you for that. I asked you if this amount of $20292.82 is not shown in the items on page 36 of the Ledger?

A. Yes sir the balance from these amounts is shown in red ink on the debit side of the Ledger as $20292.82 carried to the new Ledger.

Q. Will you take the Ledger, page 36, and show me which items on it do not represent actual cash paid by Sheldon into the company?

A. On the credit side of this account, as I understand it, represents cash payments by Mr. Sheldon.

Q. Well what do those Journal entries represent now?

A. Well they represent different things.

Q. If they are not cash payments, are they cash payments at all?

A. Some of them are and some are not payments at all, simply cash payments to his account, which in effect would be a payment.

2548 Q. Do they represent payments by the water company to Mr. Sheldon?

A. No sir, by Sheldon to the water company on that credit side.

Q. Now I want you to take up this item on Journal page 41, $33819.54 and tell me where that money went?

A. It went to the credit of Mr. Sheldon's account.

Q. As paid to whom?

A. And goes to make up the aggregate credits of his account and remained a credit to his account when these books were closed to the extent of $20292.82 which was carried forward to his account on the new Ledger.

Q. Don't you know that that money was paid by Sheldon to Ballou?

A. No, I don't know as I wasn't present at the transaction but the fair assumption is that these entries represent charges and credits back and forth between the gentlemen on their accounts.

Q. Now Mr. Nixon I will ask you if you made the total of Ballou's account on the debit side $97279.54?

A. Yes sir the same as it is on the credit side, as his account was closed on the books.

Q. You made the proceeds of the bonds sold by Ballou $59450.00?

A. Yes sir that is the amount that his account is charged with for bonds.

Q. Now what do you add to the $59450.00 to make the $97279.54?

A. I add the charges to *to* Geo. P. Sheldon and expense account item making an aggregate of $37829.54.

Q. Now how is that amount of $37829.54 made up?

A. It is made up and charged to Ballou and company, $10.00 to Sheldon and $4000.00 &c. two other charges amounting to $33819.54.

Q. Isn't that $33819.54 the entry that appears on page 41 of the Journal?

A. It is.

Q. Then that was merely a payment by Sheldon to Ballou
2549 and not a transaction of the Knoxville Water Company at all, was it?

A. It is on the Knoxville Water Company's books.

Q. Well was it any transaction with which the Knoxville Water Company had any direct connection?

A. Taking the transaction alone it would appear that the Knoxville Water Company handled the matter, but of course there was no net result to the Knoxville Water Company.

Q. It don't represent any money paid to, or money paid by the Water Company or any increase of indebtedness or diminution of indebtedness, or any increase of cash or diminution of cash, does it?

A. It does not. It is simply a charge to one account and a credit to the other.

Q. Then Ballou put in $59450.00 of the proceeds of bonds; was that all he put in to the Knoxville Water Company?

A. The Knoxville Water Company appears to have realized from Ballou for its bonds the sum of $59450.00.

Q. In making up your $112271.97 as the cash that went into the company, how much did you say Ballou had put in, or how much had come from Ballou?

A. In that statement I think I took Ballou's Ledger balance; I hadn't investigated cash account to see what he had actually paid in.

Q. Well how much do you say now he had actually paid in?

A. $59450.00 appears to have been realized from Ballou and Company.

Q. I say how much do you say now he actually paid into the Knoxville Water Company, or how much did you say in your deposition previously that Ballou had paid into the Company?

A. I didn't state. In an approximate estimate of the cost of original construction, I showed that the Ledger balance of
2550 G. W. Ballou and Company of $76328.33 and the Ledger balance of Geo. P. Sheldon, $32416.49 and sundry other accounts made up of credit balances amounting to $3527.15, and the grand total of these three amounts made the same aggregate as the above total of Construction cost of various parts of the plant of the Knoxville Water Company.

Q. Well now what amount do you say Ballou paid into the Water Company?

A. His accounts has credits to the extent of $97279.54 and withdrawals to the amount of $37829.54, which would leave going into the Water Company, $59450.00, the exact amount of bonds with which he is charged.

Q. Now why do you say in your deposition that the $112271.97 was made up of three items, one of which was from Ballou of $76328.33?

A. Because I found those balances on the trial balance we discussed yesterday.

Q. Then if Ballou only put in $59450.00 your first statement was wrong, wasn't it?

A. Yes sir the use of the balances of Ballou's account would not be in accord with the actual receipts as developed by a more thorough investigation of Ballou and Company's account.

Q. When did you make that more thorough investigation of Ballou's account, since this cross examination began?

A. Yes sir I have given this account more investigation since the adjournment on yesterday than I had previously.

Q. There is a difference between your statement as to the amount of money received from the company from Ballou as it appears from your examination in chief and in your statement this morning for the same item, as I calculated it of $16878.33, is that right?

A. I suppose there would be about that much difference between the amount received and the Ledger balance quoted.
2551 Q. Then the result of reducing your statement of cash from Ballou to the amount at which you fix it this morning would, as I figure it, be to reduce the cash received by this company from all sources to $105393.34?

A. I don't think that is correct; I don't make it that way.

Q. The figures are correct, ar'n't they?

A. Oh no doubt your figuring is correct.

Q. Well which of these two statements are you going to adhere to? the $76328.33 from Ballou or the $59450.00 from him?

A. The $76328.33 Ledger balance of his account I have never adopted.

Q. Well hav'n't you put it in here in final form in your deposition as a component part of its full value of $112271.97?

A. Yes sir I quoted it from the trial balance discussed yesterday, but I never adopted it.

Q. Hav-n't you footed up and said that $112271.97 was the amount of cash that came into this company and that Ballou paid in $59450.00?

A. No sir I did not.

Q. Well what did you put this statement in for?

A. I put it in to show that these balances would aggregate the amount of construction above prorated.

Q. Well then, that statement is wrong in that Ballou paid $59450.00 instead of $76328.33 isn't it?

A. Yes sir the actual receipts from Ballou don't appear to agree with the balance to his credit on the Ledger at that time.

Q. Then the whole make up of your $112271.97 in your examination in chief is erroneous, isn't it?

A. Well it might be.

Q. I ask you if it is not erroneous?

2552 A. I have repeatedly stated several times that I was unable to reach the total cost of $112271.97. I said it might be $110000.00.

Q. Well suppose it was $110000.00, would that still make Ballou put in $76328.33 when you say he only put in $59450.00?

A. No sir, in reaching the aggregate of $110000.00, the cost of construction, I would use the net receipts from Ballou and company amounting to $59450.00 and the net receipts from Sheldon being $62400.00 and the miscellaneous receipts of $907.43 found on the cash book, and deduct therefrom the charges on page 89 for interest coupons, &c., that did not go into the construction of the plant.

Q. Now you say the net amount received from Sheldon was $62400.00 the net amount from Ballou $59450.00. What did you do with the $20292.82 due to Sheldon?

A. I didn't do anything with it except to let him carry it forward to the other books and collect it.

Q. From whom did he collect it?

A. The succeeding books show that he collected it from the Water Company.

Q. And it was for money advanced while the Loweree books were running?

A. No sir.

Q. Well then why did he collect it from the Water Company?

A. He had charge of the Water Company and collected anything he pleased. He appears to have used the next issue of bonds and to have credited his account with a large amount for interest in addition to these credits.

Q. Well now if you, have anything else to say against Mr. Sheldon I will give you an opportunity to say it now. I will ask you my question. Mr. Sheldon was paid this $20292.82 from the Water Company wasn't he?

2553 A. It so appears from the next series of books.

Q. Then how do you deny that that $20292.82 went as

cash into the Water Company at the times when it is shown upon the books that it went in?

A. Because it was not made up of cash but of charges of Ballou and Company to him and carried to his credit.

Q. Are you positive that it is made up of charges of Ballou and Company to him?

A. That is what the books show.

Q. It was paid for by the Water Company, wasn't it?

A. Ultimately he collected it.

Q. From the Water Company?

A. It appears that he carried it to the next set of books and collected it.

Q. How did he happen to collect it from the Water Company if it was due from Ballou?

A. Ballou was charged with various amounts and Sheldon took credit for same, the result being that when the books were closed he had a net credit of $20292.82, which balance was carried forward into the next series of books.

Q. How much do these books show that Ballou owed Sheldon?

A. I hav-n't figured it out and I don't know whether he owed him anything or not. I am not familiar with their transactions. The only thing I know about it are these exchange- of entries back and forth on the account.

Q. How do you know then that Ballou owed Sheldon this $20929.82?

A. I don't know that he did.

Q. Hav-n't you just said that he did?

A. No sir I said that Ballou is charged and Sheldon credited by the amounts.

Q. Whereabouts in that $37829.54 that went to Ballou from Sheldon do you find any trace of this $20292.82?

2554 A. I don't find it anywhere as $20292.82 is less than $37829.54.

Q. Well I am willing to agree with you about that. Now does that appear anywhere in that $37829.54 that was paid by Sheldon to Ballou?

A. Oh no that amount wasn't disclosed in the exchange of entries between these two accounts.

Q. Now where does the $20292.82 appear on these books to have been paid by Ballou to Sheldon?

A. There is no evidence of payment, the only fact being that Ballou is charged to a greater amount than the $20292.82 and Sheldon's account credited.

Q. Can you identify this $20292.82 anywhere in the amounts due from Ballou to Sheldon?

A. No sir it is not identified; if it is included in the greater amount, it is not so recited or detailed.

Q. Don't you know it is a fact that this $20292.82 was carried over as a balance due Sheldon on what you call the "Martine Books" of the company and was paid for out of the proceeds of the second sale of bonds?

A. Yes sir I found this balance carried forward into the Martine series of books and Mr. Sheldon's account finally closed or settled in full, which would of course include this balance carried forward from the Loweree books.

Q. Your statement that it was an amount due from Ballou to Sheldon is pure assumption, isn't it?

A. Yes sir, from the books.

Q. Now where do the books show it?

A. On page 41 and page 42 of the Journal.

Q. Now do these pages, 41 and 42 of the Journal show all of the cross transactions between Sheldon and Ballou?

2555 A. I don't think they do.

Q. Well then how do they show this fact you have just said they show?

A. Because the charge made on these pages is for an amount that is sufficiently large to more than cover this balance.

Q. Have you made an investigation of these books now which is sufficient for you to testify upon that this balance of $20292.82 was due from Ballou to Sheldon and not due from the Water Company to Sheldon directly?

A. I have made sufficient investigation of the books to find that this balance appears to arise from charges to the account of Ballou and Company, and credits to the account of Sheldon.

Q. I ask if you are willing to swear upon your examination of these books that this sum was due from Ballou to Sheldon and not due from the Water Company directly to Sheldon?

A. No, I was not conversant with the transactions; I can only go by the entries on the books. If Ballou and company were present and should assent to have their account charged with this amount and the same carried to the credit of Sheldon, the fair assumption would be that Ballou and Company were indebted to Sheldon, but whether they were or not, as a matter of fact, of course I am unable to say.

Q. So you don't know whether the money was due from Ballou to Sheldon or from the Water Company to Sheldon?

A. I only know what these entries show on the books.

Q. Have you written up a statement of the accounts between Ballou and Sheldon themselves as they appear upon these books?

A. Yes sir I have the two accounts as they appear upon the books.

Q. Isn't it a fact that Sheldon in cash paid, or cash items for bills paid, or in cash paid to Ballou exceeds an amount by this $20292.82 all charges to Sheldon for proceeds of bonds or transfers from

2556 Ballou?

A. Yes sir taking the totals of the credit sides of the two accounts and the totals of the debit sides of the two accounts and combining them would leave a balance on the credit side of this amount, $20292.82.

Q. Then doesn't that fact show that Sheldon paid in this amount more than all that he received from all sources including Ballou and the Water Company?

A. No I don't think so, for the reason that these accounts were not made up entirely of cash but of exchange of credits from one to the other; the total amount of cash credited on the account to Mr. Sheldon is only $46707.12 and $12136.00 for settling of bills by draft, making $58843.12, or some $4000.00 less than the amount of bonds charged to him.

Q. Do you wish to correct your statement in your examination in chief that Ballou paid in $76,328.33?

A. I never made any such statement that I recall; I simply showed ledger balance to that amount.

Q. And you wish that to stand as it is?

A. It can stand for what it is worth; as it showed the condition of his account at that time. It is good for the purposes at the time for which it was recited.

Q. About what time does it show the condition of his account?

A. At the time it was taken off the ledger.

Q. What time was that?

A. I have no idea.

Q. Don't the books show?

A. I doubt it; I think that the balance is off the trial balance, that shows no date.

Q. Well look and see if you find it on the books?

A. I find it on the trial balance.

Q. I asked you to look and see if you could find it on the books?

A. Yes sir, on his account, page "56" the total credits appear to amount to $76,328.33, but it is the total credits, not the
2557 balances; something has been scratched off on this line where this amount is written; something written over it.

Q. What is the date where it is written?

A. It has no date.

Q. What is the date above where it is written?

A. The next date above where it is written is March 31st 1883; that is the date of the last entry above this total.

Q. Now can you assign any date to this $76328.33?

A. No sir, no date is shown.

Q. On page 148 of your deposition you were asked about what cash or amount had the plant cost say up to the middle of 1884. Your answer was "As heretofore answered, the original construction cost was from $110000.00 to $112000.00. Q. Did you carry that original construction cost up to the midle of 1884? A. I don't remember the date. I carried it until the books were changed. I don't remember the date. I carried it up to the time the books were changed". That being so this statement of amount received from Ballou should be assigned to the time when the books were changed, should it not?

A. I suppose so; I made no effort to secure the dates, aiming to take in the entire construction books, and was more concerned in securing the amount than the date.

Q. Continuing this construction account Mr. Nixon, what is your total allowance for construction from the closing of the Loweree books to the closing of the Martine books?

A. It is as I was able to make the same, $41863.60 as detailed on a previous date.

Q. How much do you allow on Pump Station account during this period?

A. $1142.40.

Q. How much do the books show on that account during this period?

A. I have no idea as I picked out these purchases too——

Q. I wish you would look to the Martine Ledger under "Pump Station Account"?

A. I will give you the details of my amounts first before I
2558 look, if you, wish?

Q. I would rather you would look at the book first and give us the details of what the books show in aggregate which you will find on page 78 of the book ?

A. The total charges on page 78 appear to be $45208.57.

Q. Now that includes the amount brought forward from the Lowerce books, does it?

A. Yes sir.

Q. Deduct the amount brought forward from the Loweree books from that $45208.57 and state what the net balance shown for construction during the Martine period was?

A. The total charges to Pump Station on page 78 as stated are $45208.57, and referring back to page 79 a red ink balance brought forward amounting to $30578.42 is found, and deducting this amount leaves a balance of $14630.15 charged to Pump Station on the books of the Water Company of the Martine series, which I understand includes most everything that was charged to the department, while my amount was only the Betterments that I picked out as pertaining to that department.

Q. And Betterments you allowed at $3946.67?

A. No sir, at $1142.40; that is Betterments for Pump Station.

Q. But Betterments on account of machinery you allow at $3946.67?

A. Yes sir.

Q. That is a Pump Station account isn't it?

A. No sir not entirely; it might be combined with Pump Station.

Q. Combined with what?

A. With the Pump Station proper charges; I have it under the head of "Machinery."

Q. Well the machinery was at the Pump Station, wasn't it?

A. Yes sir that includes some new boilers and a Pump &c, that were at the Pump Station.

2559 Q. You got these items out of the Pump Station account in the books?

A. I am not certain about that; I don't think I did.

Q. I wish you would refresh your recollection and see if you didn't — them all out of the Pump Station account?

A. I think I obtained them from the individual accounts.

Q. Well they are all in the "Pump Station account" ar-n't they?

A. I couldn't say. The machinery items are composed of

Knoxville Foundry and Machine Company	$973.10
Deane Brothers	850.00
Casey Boiler Company	1452.21
C. M. McClung & Company	275.03
M. F. Rourke	396.33
	3946.67
And for Pump Station, Dennis Long & Co	19.78
Knoxville Foundry & Machine Co.	497.87
Merchants' Transfer Company	85.00
Coffin Valve Company	82.88
H. O. Nelson	51.10
Ripple and Kimball	46.14
M. F. Rourke	359.63
	$1142.40

Q. I will now ask you again if all of this isn't out of that Pump Station account?

A. I presume so though I am not able to say definitely. I searched out these various items of what I class as Betterments or additions applicable to this part of the plant, endeavoring to ascertain what material and machinery was added.

Q. Adding up the two items, $1142.40 and $3946.67 makes a total of $5089.07, don't it?

A. Yes sir it does.

Q. And taking that from the total Pump Station charges on the Martine Ledger would leave $9541.08?

A. Yes sir.

Q. Did you examine all the items on the Pump Station
2560 account in that Ledger?

A. I presume so, but I am not positively certain as it is a very difficult matter to get at the items on those accounts during those dates, as there was so much mixture of operating, construction and changing of methods, &c., that I found the task so difficult, that I went to the individual accounts as far as possible and picked out such purchases of material and machinery as appeared properly classable as Betterments and additions.

Q. Did you make any use whatever of the difference between your allowance and the amounts on the books, to-wit: $9541.08?

A. No, I didn't attempt to use that amount.

Q. That amount is either construction or operation, isn't it?

A. Yes sir or it may comprise some error, as it is an account from the various pages and carried through two books.

Q. Did you find any errors?

A. In the initial period?

Q. I am not talking about the initial period; I am asking you about the Martine Ledger and I don't want anything about the initial period?

A. Well the initial period of the keeping of these books, the

engineer's salary and fireman's salary, and coal and oil and waste and repairs, and meat for the dog, and his board at the Lamar House and everything else appears to be charged up to "Pump Station."

Q. Did you allow any of these things you have mentioned on the operating expense account?

A. I don't know whether I did or not. I took the operating expense account as the books showed and whether they included any of these things or not I am not able to say as I didn't dissect that operating expense account.

Q. That is one thing I understood you were to testify about and I want to know if any of these things do appear in operating expenses?

2561 A. I am not able to say, and I don't know that I could say if I were to endeavor to find out.

Q. If there are any operating expenses in this amount of $9541.08 that you have thrown out, they ought to go into the operating expense account, oughtn't they?

A. Certainly if I was making up an operating expense account I would want to include them, if proper to do so.

Q. Wasn't it your business to make up an operating expense account?

A. No sir I didn't undertake to do so.

Q. Then what did you put this operating expense amount in here for?

A. In response to the question as to the amount of operating expenses shown by the books for the term indicated.

Q. But Mr. Nixon if there are operating expenses in this amount that you excluded, they are shown by the books, arn't they?

A. I could not say.

Q. Well this amount $9541.08 is a part of the book entries, isn't it?

A. It is a part of the amount charged to Pump Station.

Q. You have corrected the Pump Station account as against the company hav-n't you?

A. No, I have endeavored to secure the amount of purchases and additions and betterments as applicable to the Pump Station.

Q. Did you put in the Pump Station account as it appears on the books?

A. Oh no.

Q. Then you did change that in order to get at the facts, didn't you?

A. I put into my Pump Station account the purchases and additions that I found in these various accounts that I considered consisted of Betterments or additions to the plant.

Q. You changed the Pump Station account from what it appears to be upon the books in order to make it show what you thought were the items that should be properly charged under it?

2562 A. No I didn't change it; I made an account of my own.

Q. Now when you came to these other items of Pump Station account some of which we will assume were operating expenses, why didn't you find out whether they were right or not?

A. Because I wasn't recasting or reposting to operating expenses for that period.

Q. Didn't you say awhile ago that you got up this statement from the books as you were asked to get it up?

A. Yes sir.

Q. But you didn't get it up according to the books in regard to Pump Station, did you?

A. My previous answer referred to operating expenses that I took from the books as shown thereon.

Q. What were you asked to get up in regard to this Pump Station account?

A. I was endeavoring to get up the additions or extensions of betterments to be added to the cost of original construction so as to arrive at the amount of the same up to the 31st of December 1891.

Q. I would like the Court to have an understanding of the method you pursued in making out these statements, and I ask you if it is not a fact that where you found a book account containing items in favor of the company, or showing expenditures by it which you did not approve, you cut those items out?

A. That would depend upon the character of the account.

Q. Did you leave in any items you did not approve?

A. That also depends upon the character of the account. I have no means of knowing whether I would approve the operating expense account found on the books for the term under discussion or not, as I didn't investigate them.

Q. I think you said you examined this Pump Station account?

A. Oh I expect that I endeavored to make such examina-
2563 tion as was possible; it was a very difficult account to examine.

Q. Now why didn't you adopt it as it stands on the book?

A. Because I didn't think it was correct.

Q. Therefore you rejected it because it was incorrect?

A. I believed that it included a great many more things than actual betterments, improvements or additions.

Q. Well that means it was incorrect, don't it?

A. It was incorrect as showing additions to the plant at that time as applicable to the Pump Station. If it includes a lot of operating expenses, of course they should not be allowed to swell the cost of that part of the plant such as coal, engineer and fireman's wages, oil, waste and ordinary repairs.

Q. Are those all in there?

A. I don't know; I think some of them are in there.

Q. Now I have asked you two or three times if you didn't reject this Pump Station account because it was incorrect; can't you answer that yes or no?

A. I thought I had conclusively answered that.

Q. Are all the entries on Pump Station account correct, or are any of them incorrect?

A. That would depend upon the character of the account and for what purpose the account was kept. If a bookkeeper was running a system of books by which everything was charged to Pump Station, it would be correct to charge everything to Pump Station, but if

he was undertaking to make a distinction between the operation of the Pump Station and additions and betterments to the Pump Station, such separation of the account should be made.

Q. There are certain items that are properly chargeable to Pump Station account, are there not?

A. Well if Pump Station is a property account, certain classes of items should be charged to it, but if some other character
2564 of account, then another class of items should be charged to it.

Q. Well there are certain items conceivable that are properly chargeable to Pump Station account, are there not?

A. No doubt all the items I have enumerated are charged to Pump Station account in this book.

Q. Please repeat the question to the witness? (Question last above repeated.)

A. Undoubtedly, and no doubt this account includes the items I have enumerated, and it also appears to include a great many more.

Q. Your opinion is that the Water Company was earning money from a very early period of its history, I believe?

A. My opinion, from a showing of the books here, warrants the conclusion that it earned money during its initial period of operation from 1883 to December 31st 1891, which as I understand is the period now under discussion.

Q. That opinion would be supported by the fact, if it were a fact, that the operating expenses were small enough to allow a profit to the company, wouldn't it?

A. Oh yes, it is a self-evident proposition.

Q. Now if in this rejected amount of $9541.08 from Pump Station account there are items of operating expenses which you have not allowed the company, would that be a fair statement—I mean would the amount that you have allowed be a fair statement to the company?

A. I suppose so, though I am not able to say what the operating expenses shown by the company do include, or whether these doubtful items are included or not; it may be possible that they are charged in both.

Q. But you don't know whether they are or not?

A. I don't know whether they are or not.

Q. In your examination of the books you have rejected
2565 every item that you thought ought not to be charged in favor of the company, have you not?

A. No I have endeavored to include the items I thought should be charged; I hav'n't done any rejecting.

Q. Why then didn't you put into operating expenses all the items you thought ought to be included in that?

A. Because I didn't make an operating expense account.

Q. Why didn't you make it?

A. Because I wasn't expected to; I wasn't required, or asked to make it.

Q. Wasn't you asked to make a statement of Construction cost on the one hand as against operating expenses on the other?

A. My operating expense account was limited to the years 1899, 1900 and 1901.

Q. If that was the case why did you put in an operating expense estimate for the period that we are now considering?

A. That was in response to a different proposition being on the "going concern" subject.

Q. You have said that these operating expenses were about $110,000.00. Now do you know as a matter of fact that that was all the operating expenses for the period that you are considering?

A. I don't know. I only know that that is the amount shown by the books with the additions that I made, being some $4,000.00 for legal expenses and personal injury, the books showing $106,170.00, and I made it $110,000.00.

Q. What was the construction account for that period?

A. I don't recall.

Q. Have you got a statement of it?

A. I think I have.

Q. Well what is it?

A. It is not on my tabs here.

Q. Can you state about what it was?

A. I don't remember.

Q. Does it agree with the book construction amount?

2566 A. I should think not. That book construction account is a "snowball."

Mr. CALDWELL: I will ask the court to strike out that last snurring statement.

COMMISSIONER: I will let it stay, as I cannot be reforming the statements of the witness continually. If you are correct in your objection it will have a tendency to help instead of hurting you.

Q. Then I understand that your construction account is less than the book construction account?

A. Yes sir my betterments as stated during that time amount to $41,863.60 and the construction account on page 6 of the book shows a cost of $471,496.75, so my amount is considerably less.

Q. It is to the interest of the city to cut down the construction account, isn't it?

A. No I should think the interest of the city would be to ascertain the actual value of the construction.

Q. Now when you came to the operating expense account, you adopted it from the books?

A. For the period under discussion I did,—during the time or the years that I investigated the operating expenses, I didn't follow the books entirely—I endeavored to eliminate what I considered as improper charges.

Q. I am not asking you about the other period, I am asking you about this period?

A. Well it would be better for you to frame your question that way.

Q. I did frame my question that way; you know perfectly well what I am talking about. During the period under consideration

covered by the Martine books you did follow the books as to
2567 operating expenses?

A. Oh yes I reported exactly what the books showed, and so stated.

Q. You did that because it is to the interest of the defendant in this litigation to have large operating expenses and small construction expenses didn't you?

A. I don't know as that idea entered into the question. I was endeavoring more to get the facts as I found them.

Q. If you are going to correct one account why is it not fair to correct the other also?

A. That would depend upon what you are aiming to arrive at.

Q. If you want to arrive at the actual facts in the case and you correct one account according to your judgment, isn't it the only fair way to correct the other account also according to your judgment?

A. I should think that would depend altogether upon the theory upon which you were proceeding.

Q. Under what theory are you proceeding?

A. In quoting the amount of operating expenses I was proceeding upon the theory of giving the amount of operating expenses charged by the company as shown by the books, and under the theory of securing the cost of the betterments, extensions and additions that had accrued to the plant from the period of original construction up to December 31, 1891, and endeavored to find the cost of the actual material, machinery and betterments that should be marshalled to secure the correct amount of same, to be added to the original cost of construction and thus ascertain the total amount of the cost of the plant up to the date last named.

Q. That is you proceeded upon a totally different rule in each of these cases?

2568 A. I pursued a different method; I didn't regard rules particularly.

Q. Do you think you can make a fair comparison by adopting those two methods in the two cases?

A. I wasn't endeavoring to make a comparison.

Q. The result of the method that you have adopted, as for instance, in fixing Pump Station construction cost during this period at some $9,000.00 less than the book statement of the same, is to reject entirely from consideration in this case that amount of $9,000.00 and odd dollars, isn't it?

A. I suppose you would so consider that it was rejected, although I didn't regard it, or consider it.

Q. Now if the company spent that much money isn't it entitled to have credit for it on some of these accounts?

A. I should think so.

Q. Well have you given it any such credit?

A. I haven't stated an account against the company.

Q. The result of your opposed methods in the two instances is to reject large amounts of construction account and not allow it anywhere?

A. No I couldn't agree to that.

Q. Well what did you do with the differences between your statement and the book showings?

A. In what particular?

Q. In any particular?

A. In the matter of a construction estimate, or ascertaining the cost of construction as in this Pump Station item, I endeavored to collate and collect the charges that should be properly included in my amount and of course disregarded the others.

Q. You simply threw away the majority part of the Pump Station construction account for this period?

2569 A. I probably threw away a greater part of this amount charged, but I couldn't concede that that represents construction, as I don't think it does.

Q. You don't know what it does represent do you?

A. Oh I think it represents construction, operation and perhaps other things.

Q. And yet you have put in an operating expense account here that don't include any of it?

A. I don't know whether it does or not.

Q. And you hav'n't cared to make an examination to see whether it does or not?

A. No sir I wasn't required in that instance to do more than to report the amount of the operating expenses for that period charged by the company and so designated.

Q. Don't you know that if you are attempting to make statements in this record as a witness fair to the Water Company, that it is necessary when you reject an item in any account that you shall show that that item is wholly erroneous, and should not be charged to any account, or that you should allow it in the account, if it be proper for any of them, to which it belongs?

A. If I had undertaken to do that I am afraid I would have attained the age of Methusalah before I had gotten through with it

Q. Please repeat the question to him? (Question repeated.)

A. This would have required an immense labor of investigation, with very doubtful prospect of succeeding.

Q. Leaving out of consideration the amount, if any brought forward from the Loweree books into the street account, and state the amount of the street account for the period covered by the Martine books?

A. Street account starts on page 40 of the Martine Ledger and is carried forward to page 63 and following pages, and amounts to $98,339.38, and deducting therefrom the balance brought

2570 forward from the Loweree Ledger of $47,977.84 leaves a balance charged to Street Account of $50,361.54.

Q. And you allow how much on Street Account for that period?

A. $28888.31.

Q. That makes a difference of $21473.23?

A. Yes sir, $21473.23.

Q. What use, if any, do you make of that amount?

A. I hav-n't used it.

Q. In addition to that there are items of small extension on

Ledger page 276 of $779.79, on page 279, $49.50, on page 280 $363.74, on page 281, $204.85, on page 282, $145.66, on page 283 of $9.48, are there not?

A. Yes sir I have these items, aggregating $1553.09, and they are included in my $28888.31.

Q. Then the total difference between your estimate and the book estimate is $23026.32?

A. I was under the impression that these extensions had been closed into the street account before I made the computation, but if not they would increase the difference about that amount.

Q. Please turn to page 230 of the Martine Ledger, Betterment Account, small items, and after excluding all items in pencil see if there doesn't remain a balance of $3635.30 and say what disposition you have made of that?

A. The pencil amounts appear to aggregate $190,080.81; deduct the same from the aggregate total of the debit charges of that account on that page which is $193,794.41 leaves a balance of $3713.60.

Q. Then there is a credit of $83.60?

A. Yes sir.

Q. Leaving a net balance of what amount?

A. Of $3630.00.

Q. Now what did you do with that amount?

2571 A. I recognize some items in that difference that I have used. I see Deane Brothers Pump $850.00 and various meter bills, and I have a considerable amount for meters and also bills from Mr. Rourke; I also have in my Street Account quite an amount from him, nearly as large as this balance. The indications here are that I have included all that balance in Street Account.

Q. Well would it increase or decrease your deficiency or the difference between you and the book account?

A. It would reduce it if I have included it.

Q. What is the difference between your statement of Reservoir account for this period and the book statement?

A. The Reservoir Account on page 42 and succeeding pages, comprises a total amount of charges aggregating $30339.38 which includes a balance brought forward from the Loweree construction book of $23329.20, which would leave an excess balance of charges to this account aggregating $7010.18.

Q. Well what is the difference between you and it?

A. My findings of Betterments and additions to this account aggregate $5058.32, being $1951.86 less than the amount of charges on the books.

Q. What do you allow for Real Estate during the Martine period?

A. For what purpose?

Q. As purchased or acquired by the company?

A. During the original construction I included $7800.00. I don't believe I have included any addition to real estate for the succeeding period; in fact I overlooked that part of it.

Q. I wish you would look now and see what it is, won't you?

A. Real Estate Account on page 3 includes a balance brought forward from construction book of $7800.00 and is carried forward to

page 243, the amounts charged to this account aggregating
2572 $11689.89, which is $3889.89 increase on that account, which if they represent purchases of real estate used for water works purposes, should be properly added to my betterment account, or my statement of Betterments for the Martine period.

Q. Did you make any allowance for office furniture during this period?

A. No I appear to have no account of office furniture for that time. I have $1884.00 for meters.

Q. Please see if the Ledger page 273 does not show the company entitled to an allowance of $350.71 for office furniture during this period?

A. The account on that page indicates that that amount has been expended for office furniture.

Q. In the matter of meters you have allowed the sum of $1884.50 whereas the books only show $217.28, and I assume that that is in part at least made up of the items which you found in the sundry Betterments?

A. Yes sir I think they are in that account as I see other matters charged.

Q. You have also allowed $234.33 for merchandise on hand which is not included in our construction account?

A. Yes sir I think I obtained that from some of the depositions.

Q. According to my understanding then you have allowed on all these accounts in which I have been examining you $41863.60 as against $81609.14 book accounts for the same items, that is correct isn't it?

A. I presume so, although I hav-n't figured it through to ascertain.

Q. And you have not made any use of the difference whatever?

A. I suppose not.

The further taking of this deposition was adjourned until Tuesday morning, October 27th, 1903, at 9:00 o'clock A. M.

2573 TUESDAY, *October* 17, 1903—9:00 o'clock a. m.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

Q. Mr. Nixon on the 24th of this month there appeared an article in the afternoon Sentinel, a newspaper published in this City, entitled "Expert Wm. Nixon's evidence in Water Plant investigation." I wish to ask if you are the author of that article?

A. I am not.

Q. Did you furnish the material on which it was constructed?

A. Mr. Milton borrowed a copy of the deposition from me up to that time, is all I had to do with it.

Q. You were aware of the fact then that it was going to be published, were you?

A. He said he was going to publish a synopsis of it, or an extract from it. He wanted me to make a synopsis, and I told him that he

could make his own synopsis and I would loan him a copy of the deposition.

Q. You yourself loaned him a copy?

A. He borrowed it from me, yes sir.

Q. Did you furnish any information outside of the deposition?

A. I don't recall any.

Q. But you knew before hand that this synopsis of your testimony was going to be published in the newspaper?

A. He said he was going to publish some extracts from it, or make him up an editorial, or do something with it.

Q. Did you request the publication?

A. Oh no.

Q. Did you make any objection to it?

A. No I took no position either way, except to object to making a synopsis for him of the evidence on file.

2574 Q. Mr. Nixon at a former day of this examination you stated that you found a discrepancy in the amount of pipe shown to have been laid during the period of original construction in the deposition of William Wheeler or the estimate of William Wheeler and the amount shown to have been laid during the same period in the deposition of A. H. Martine. Please look to the deposition or paper which I now hand you, which appears to be the deposition of A. H. Martine given in a former litigation and see if the table which I indicate to you is the one to which you referred when you spoke of Martine's deposition?

A. No this appears to be a more extended or detailed table than the one I quoted from, but it appears to reach the same result or to carry the same aggregate of pipe of all sizes, or practically the same, 43390 feet.

Q. Well where is the one to which you had reference?

A. I don't know.

Q. I wish you would produce it if you can unless you are willing to say that the aggregate here is the same?

A. The aggregate here is substantially the same; I think probably 20 feet difference is my recollection.

Q. Now please read to the stenographer the first three lines of Mr. Martine's answer in which that table is included?

A. It is as follows: "As near as I can get from estimates taken by scale from map of the City there is of 20 inch pipe," &c., &c. I don't think that this is the deposition that I quoted from.

Q. Now please look to the paper which I hand you and say if that is the deposition of Mr. Nicholson to which you refer?

A. I think it is, as it is identified by his stating that Mr. M. J. Condon, an Alderman, requested him to make this measurement, and I think I practically identify the quantity of pipe shown.

2575 Q. See if this does not occur in Mr. Nicholson's deposition which I have just handed you. "During the summer of 1884 Mr. M. J. Condon instructed me to go over the city and measure the length and sizes of water pipes then laid down by the Water Company. This I did as regards the length of the pipes and wher-

ever possible also the sizes, and below is a brief of said work" giving it at the last paragraph on the bottom of the page there?

A. It does.

Q. Mr. Nicholson was a Civil Engineer and the City Engineer at that time?

A. He states that he was a Civil Engineer and had been City Engineer for two years.

Q. Mr. Martine says that he made his measurements from a scale map of the City, doesn't he?

A. The deposition that you furnish here so shows, but in the one that I quoted from I don't recall how he says he ascertained it.

Q. Is the gross amount of water tax shown by you on your statement (page 28 of your deposition) the book account, and are not the additions shown there the additions of the actual collections as shown from week to week by the collection reports?

A. It is the gross amount of collections shown by the books of the company in the aggregate—I didn't check the weekly collections—in some instances the amount is in aggregate for the whole year as I recall; the latter years perhaps are made up by quarters.

Q. In your account of abatements and rebates for the six months of the year 1902, from April to September, you give as taken from the books $1844.54 as the amount of abatements and rebates. I wish you would get from the book the items, stating the page of the book which make up this amount?

2576 A. I am unable to find that division as I made it over at Mr. Edington's office after that year was divided, and have no memorandum of it and don't know how I arrived at it. The total abatements for that year——

Q. I don't want the total abatements for that year, but I want them only for the six months?

A. Well the total abatements for the six months as entered on the books amount to $2283.58 and the rebates $175.52, total $2459.10. My recollection is that I secured this $1844.54 by taking one-half of some amount which I regarded as the correct amount at the time, but evidently I got hold of the wrong amount as it doesn't appear to be correct, but this six months not being included in my analysis or investigation to a close extent I didn't pursue the subject so as to guarantee absolute accuracy as it couldn't be obtained anyway, because the six months business hadn't been closed up.

Q. You have examined the books just now?

A. Yes sir and have obtained the amounts that I have quoted.

Q. Therefore the amounts of abatements and rebates for that six months should be increased $614.56 apparently?

A. Yes sir $614.56.

Q. You have included this six months from April to September 1902 in the table given on page 28 of your deposition?

A. Yes sir.

Q. Do you still make use of this six months in your estimate or do you eliminate it?

A. I eliminate it as to further examination of this question.

Q. Then there is no reason that we should inquire further into it?

A. No sir.

Q. Neither the matters that we have been talking about or operating expenses?

2577 A. Neither side of the account, either the income or operating expenses for this six months was considered in the three years' investigation that is subsequently detailed in my deposition.

Q. Going back to page 29 of your deposition for a moment, where you have testified that a certain amount appears to cover 1475 cubic yards rock excavation. It is a fact as I understand that you assumed that quantity because it appeared in William Wheeler's deposition?

A. I so stated in a former answer to a question on this subject.

Q. You state that Hood and brothers account only covers 78 yards earth excavation, the price which you fix being 30 cents. How did you get that quantity and price?

A. I got the quantity and price from the deposition which was corroborated by Mr. Claud Hood, but on further investigation I find that this 78 yards of excavation occurred at a later date, in 1895 I think, and couldn't have applied in the original assumption as it was no doubt not done by Hood and brother.

Q. The statement then on page 29 of your deposition is erroneous in this respect?

A. The assumption there recited is erroneous in this respect.

Q. If you adopted the quantity of rock excavation entering into this account as given by William Wheeler on page 24 of his deposition, why did you not adopt the same quantity of earth excavation, to-wit: 560 cubic yards of the same work as shown on page 23 of his deposition?

A. I don't recall, unless that it appeared excessive as to quantity, and would make a greater aggregate than Hood and brother were paid.

Q. You didn't measure it?

A. Oh no, not at that time.

Q. Did you measure it afterwards?

A. Professor Brown and I have made a computation of it

2578 from the plans.

Q. How do you know whether the discrepancy occurs in rock excavation or earth excavation?

A. We computed both.

Q. You mean Mr. Brown made ahe measurements?

A. Mr. Brown took the measurements off of the plans and we together computed the quantity.

Q. Did you see any plans showing that original work over there?

A. I don't recall which particular plan. There were numerous plans and photographs and blue prints and drawings and other data that was taken into consideration.

Q. Isn't it a fact that there were no plans of that work originally, and what you refer to as plans were simply some sketches made by Mr. Kimball in making up his analysis and shown by him to Mr. Brown and not to you at all?

A. I don't know, as Mr. Brown had the figures that we used.

Q. Then you neither measured it or figured on it yourself, did you?

A. Yes sir I figured on it with Mr. Brown, but as stated I never measured it; I never took any measurements off the plans or sketches, Mr. Brown having done that.

Q. You say "sketches." I understand you to say "yes" in answer to that yart of my question which asks if what you have called plans, wasn't simply some sketches made by Mr. Kimball and shown by him to Mr. Brown?

A. No I would be unable to say yes, as I don't know.

Q. You don't know what Mr. Brown did figure on?

A. I don't know how Mr. Brown obtained his measurements.

Q. And you adopted his measurements?

A. Yes sir certainly and assisted him in making the com-
2579 putations.

Q. You say on pages 30 and 31 of your deposition, powder, caps, &c., used in blasting are worth about 25 cents a yard of rock excavated. Do you mean by this that 25 cents per yard would be added to the $1.10 per yard?

A. Yes sir that was my understanding.

Q. Then all your estimates of $1.10 a yard should have 25 cents added to them, should they not?

A. Only in this particular instance of Hood and brothers work in which they stated that the price they were paid was $1.10 and the company furnished the explosives. I find however on further investigation that some of the hand books say that the estimate I allowed for these explosives was very excessive.

Q. You say that you allowed an excessive estimate for explosives?

A. This allowance as I stated at the time, was largely conjecture, and I thought it was very full at the time, but I have since seen where the hand books reduce it a quarter to a half a pound of powder to the cubic yard of rock excavation.

Q. You have stated that Hood received about $1.35 a yard, hav'n't you?

A. I have stated that adding this conjecture to the price he did receive would make in the neighborhood of $1.35 for this job, but if I got the allowance for explosives too high the $1.35 price would be reduced to the extent that the conjecture was excessive.

Q. I call your attention to the deposition of Claud Hood on page 362 where an answer to the question "what were you to bid on the dirt?, his answer was "50 cents a yard on mud excavation." I ask you if you adopted the price that he said he bid on rock, why you don't adopt the price that he bid on earth and mud?

2580 A. I don't remember of seeing his deposition on that point, but made my assumption from a conversation with Mr. Hood in which he told me that 30 cents was the price and that there was a controversy about it, that his father thought he ought to have been allowed in the tunnel, but the company held him down and paid him 30 cents, being the earth excavation price.

Q. I wish you would look to Hood's deposition, page 362 and see if it don't say 50 cents?

A. He states on page 362 that their bid for mud excavation was 50 cents. I don't see any reference to earth excavation except he

says the pit was counted solid stone, and there would be nothing but crevices with a little dirt in it.

Q. Would you make any change on your allowance on this point?

A. I don't think it is necessary as 30 cents was certainly a high price for earth excavation.

Q. But if they paid Mr. Hood 50 cents, wouldn't you allow us that amount?

A. Well I am not discussing or figuring on mud, or prices for handling mud.

Q. Doesn't it appear from Hood's deposition that there was mud there?

A. I don't find that definite.

Q. If there was mud, or if it so appears from Hood's deposition, would you make any change in your estimate?

A. No, because I allowed $10.00 a foot for that tunnel and that would cover mud, water and every other kind of contingency.

Q. I am not asking you about the tunnel but the pit?

A. Well that is where that occurred.

Q. Can you demonstrate from these depositions that that is where this occurred?

A. There is a charge of 38½ feet at $20.00 a foot in Mr. Wheeler's estimate.

Q. What has that to do with the excavation of the pit?

2581 A. That is part of the excavation of the pit and a part of the excavation here.

Q. I am asking you about the earth excavation in the pit exclusive of the tunnel. If you want to add something later about the tunnel that is another matter, but I am asking now about the earth excavation in the pit?

A. Well what do you want to know about it?

Q. I want to know what you would allow per yard for such earth excavation in view of the facts that appear in this record?

A. Mr. William Wheeler in his estimates states that there were 560 yards of earth excavation for the engine pit which he charged at 30 cents,—$168.00, and in making up my statement of comparison of excess charges I allowed this 560 yards at 30 cents and also 100 yards for boiler house and 190 yards for boiler house at 30 cents, and in our estimate of cost of replacement we allowed the earth excavation in this pit at 20 cents, as we knew from our experience and comparison with other work that it could be done at that price.

Q. Now I understand that you and Mr. Brown made measurements and estimates to ascertain the amount of earth that was taken out of the pit?

A. Professor Brown made the measurements from the plans, and he and I together made the calculations.

Q. And you found 1475 cubic yards of rock and 530 yards of earth and 290 yards more of earth, did you?

A. We found 1807.2 cubic yards of earth and 1642.4 cubic yards rock excavation in the pit, and engine house and boiler house foundations and cleaning off and general work there except the Intake improvements.

Q. And how much was the pit proper?

A. I don't believe I have the memorandum here to show the pit proper. I have in the old pit down to solid rock 400 cubic
2582 yards, and in the new pit——

Q. I am not asking about the new pit but just about the old pit Mr. Nixon?

A. Well I didn't keep those distinctions very clearly on the measurements down there. I have here 422 cubic yards and 400 cubic yards and 64.4 cubic yards, 171.4 cubic yards, 700 cubic yards and 49.4 cubic yards but you will have to get the location of that work from Professor Brown when you examine him, that is the exact location of the quantities.

Q. As to rock excavation, Mr. Wheeler's estimate was higher than Hood's and you adopted Hood's prices?

A. Yes sir Mr. Wheeler's estimate was $1,87½; it was higher than anybody's in this country for rock excavation of that character; it was higher than Hood's, Getaz'-, Munding or myself, and was higher than all your investigations in the Chattanooga case.

Q. And when you came to earth excavation Mr. Wheeler's price was lower than Hood's, and when you had rejected Wheeler's higher price for rock you accepted Wheeler's lower price for earth. I would be glad if you would explain to me the process by which you reached that conclusion?

A. I don't find that I reached any such conclusion.

Q. Well you adopted Mr. Wheeler's price for earth excavation, didn't you?

A. In one instance I let it go as not being an overcharge or excessive, but in the second instance in making up cost of replacement, we didn't adopt it but adopted a price 10 cents lower, a more practical price.

Q. Now have you considered the fact that Hood did any excavation in that pit?

A. The excavation of the pit wouldn't be out in the river as the pit is some 30 or 40 feet from the river.

2583 Q. I understand that, but doesn't his deposition show that he bid on mud in the pit?

A. I have never read his deposition until I read that part to which you referred.

Q. Well don't it show that now?

A. As read and as I heard this moment, he did some excavation out in the water which might apply to the tunnel which was driven out there. The river wouldn't be in the pit, which was some 40 or 50 feet away from the river.

Q. You say you have driven tunnels at from $2.50 to $3.00 a yard? Do you mean a lineal or cubic yard?

A. A lineal yard; generally 4 to 6 feet wide; yes 6 feet wide and 7 to 8 feet high.

Q. Would you make any difference in charge per lineal yard for a tunnel 4 by 6 feet and a tunnel 6 feet by 8 feet?

A. You can drive a large one nearly as cheap as you can a small

one, all the difference is in the material handled but that is overcome by the more room you get in a larger tunnel.

Q. Well that is what I asked you if you make any difference in the price you charge of the different sizes?

A. Of course the conditions would have to be considered.

Q. Take the conditions as stated?

A. No, in mining there is very little difference; in fact many miners prefer to drive a large tunnel than a small one.

Q. You say there is very little difference; is there any difference at all?

A. As before explained, under ordinary conditions there is practically no difference as the facility secured by more room to work overcomes or balances the additional material that is to be removed in a tunnel of greater size, within reasonable limits.

2584 Q. Where have you built any tunnels?

A. In all the mining works that I have been engaged in.

Q. Were you tunneling through coal?

A. No sir I was tunneling through rock, slate, sand stone, coal, iron ore, and coal and iron ore strata, with additional materials encountered to make a tunnel. It is very rare that you find coal or iron ore of sufficient thickness to make a tunnel without taking the top or bottom.

Q. Did you ever drive a tunnel through solid limestone?

A. Yes sir.

Q. What did it cost you per yard?

A. I don't remember; I can not recall now. Prof. Brown will give you his experience as he has driven some lately and kept the actual cost, which I didn't do.

Q. Didn't you make these allowances here upon your knowledge and experience?

A. Yes sir to some extent.

Q. Well you can't remember any prices that you paid for driving tunnels through solid limestone?

A. No sir I don't remember that; I did not do that kind of work by contract.

Q. Did it with convict labor?

A. Some by convict labor and some by day laborers, at miners' and day laborer rates.

Q. How many cubic yards in a lineal foot of this tunnel at the Pump Station?

A. I didn't take that; Prof. Brown has that on his book.

Q. Well do you think you know enough about this tunnel to make an estimate on it if you can't answer any of these questions?

A. Why of course I had all this data when I was making the estimates.

Q. What did you do with it?

A. I didn't do anything with it except to figure on it.

2585 Q. And you can't tell me now about the things I am asking you about, can you?

A. I think so.

Q. Well I thought you just said you couldn't?

A. Except some of these measurements where this yardage occurs in the work or the exact area in a certain part of the work I cannot give you because I didn't take it down on my memorandum book, as he had it down on his and that was sufficient.

Q. What was the size of the tunnel?

A. I don't remember.

Q. Well isn't that the most important question in getting the price?

A. Well we had the measurements when we were making the price; we had the width, height and curvature of the arch, and straight sides of the tunnel, and how high up, and figured the area and length from the logarithms.

Q. You haven't them here now?

A. No I didn't retain those measurements.

Q. Were they your own or Mr. Brown's?

A. Well they were either of ours I suppose; they were on his book. He retained all that minute data. I didn't copy it off. When he comes on the stand he can give it to you to the fraction of an inch.

Q. When did Mr. Brown come into this case and do this work with you?

A. He came about the first of September and we did the work after he came here.

Q. Didn't you testify about the cost of this tunnel before Mr. Brown came into the case?

A. I might have done so; I could have testified that $20.00 per foot was excessive in this case.

Q. Didn't you give your testimony as to the dimensions, cost, &c., before Mr. Brown came into the case?

A. Yes sir based on Mr. Wheeler's length of the tunnel, to-wit: 38½ feet.

2586 Q. Before Mr. Brown came into the case you had testified that this tunnel cost $10.00 a foot didn't you?

A. Yes sir, that that would be a liberal allowance for it, including the brick arching.

Q. For a tunnel of what size?

A. The size of that tunnel, or any reasonable sized tunnel.

Q. Any reasonable sized tunnel?

A. Say 6 or 8 feet wide and 6 feet high; this tunnel is smaller than that, I understand, or was originally; it is larger now.

Q. Then you testified before Mr. Brown came into the case that it was worth $10.00 a foot to drive a tunnel the size of which you don't know?

A. Yes sir I testified that I thought $10.00 a foot would be a liberal price for that tunnel, and think so yet.

Q. And when I ask for measurements of this work you refer me to Mr. Brown?

A. Yes sir, to get the exact cubic yards, I do. I didn't need these quantities in making my estimate.

Q. You say the size of a tunnel does not make much *much* difference as to the cost of driving it?

A. Not in ordinary mining practice and ordinary tunneling and

under ordinary conditions, within reasonable bounds. Of course if you are going to make a tunnel 20 feet high and 40 feet wide it would make a difference.

Q. Does it take the same quantity of brick to line a small tunnel as a large one?

A. No sir it takes more brick to line a large tunnel, and then there are different methods of lining. Some tunnels are lined in a ring all the way around. This tunnel has two short legs, as I understand, and an arch of brick 13 inches thick.

2587 Q. You say in your original or ante-Brown testimony as to the cost of this tunnel you considered the brick that it took to line the tunnel?

A. Yes sir, in a lumping way.

Q. What did you allow for those brick in that lumping way?

A. I don't remember; I just chucked them in with the $10.00 a foot estimate.

Q. You chucked the whole estimate in the same way, didn't you?

A. Yes sir at $10.00, which I thought very liberal.

Q. When Mr. Brown measured this tunnel for you, did you make any changes in your quantities or prices?

A. For replacement purposes we did, but as against Mr. Wheeler's estimate of $20.00 a foot cost of this tunnel, I did not.

Q. You don't know the diameter of the tunnel either way?

A. No I don't recall it because I haven't the measurements with me.

Q. You don't know the length of it?

A. Yes sir we had the length, width, height and radius of the arch.

Q. Do you know the length of it now?

A. No; in my estimate I used Mr. Wheeler's estimate of 38½ feet.

Q. Did you use his diameter also?

A. I suppose so; I didn't pay much attention to the dimensions; I knew it wasn't a very large tunnel and I found afterwards it was a very small one.

Q. Did you think you had any more right to be careless about a small tunnel as a large one?

A. I have explained previously that this cuts a very small figure in driving a tunnel.

Q. Don't you think it was as much your duty to be accurate in a small matter as in a large one?

2588 A. I think I was sufficiently accurate in finding that there was an overcharge of $10.00 a foot on this work.

Q. Were you accurate in regard to anything else you can indicate to me with reference to this tunnel?

A. I think I was sufficiently accurate.

Q. You said that the brick lining of the tunnel could not be more than $4.00 a foot; what was the thickness of the brick work—what was the number of brick per lineal foot of this tunnel going to make up the charge of $4.00 per foot?

A. That would depend altogether upon the size of the tunnel, how

long the legs were, how great the arch, the thickness of the brick work I was informed was a brick and a half, or what was called a 12 or 13 inch wall.

Q. You made this estimate of $4.00 a foot before Mr. Brown came into the case didn't you?

A. Yes sir.

Q. Well now I ask you upon what thickness of brick work and what number of brick per lineal foot of tunnel you estimated this as costing $4.00 a foot?

A. On the basis of 12 or 13 inch wall and on a tunnel of comparative size, brick couldn't cut much figure; $4.00 a foot would lay a great many brick in a little tunnel.

Q. So your estimates were made upon a tunnel of a comparative size?

A. An approximate size.

Q. Approximate to what?

A. To the one that was there, that is gone.

Q. Well as you didn't know the dimensions of the one that was there how can you approximate it?

A. Well I knew something of the dimensions—I knew the approximate dimensions—I knew it wasn't a large tunnel as it only carried two pipe.

Q. Did your knowledge extend beyond the fact that it was not a large tunnel?

A. That would have been sufficient.

2589 Q. Going to page 32 of your deposition where you itemize the deduction and allowance for rock excavation making up the total deduction of $2444.43, you allow 90 cents for 2083 yards. You have previously testified that 25 cents is necessary for powder caps, fuse, &c., per cubic yard of rock in blasting. This would leave for labor, hoisting and disposal of this rock 65 cents per yard. Do you mean to state that 65 cents per yard will furnish the labor, tools foremen, derrick, staging, &c., for work of this description where the rock runs from the surface to over 30 feet in depth at places?

A. As before stated the 25 cents estimate was conjecture, but I would like to take a contract for such a job at $1.00 a yard furnishing my own explosives at the present rates of labor, &c. When this work was done years ago labor was a great deal cheaper and more plentiful.

Q. The 25 cents for explosives is included in the 90 cents you allow here, isn't it?

A. Not necessarily 25 cents, but some explosives were included in Hood's part of the work.

Q. Well you would allow these rock to be exploded wouldn't you?

A. Yes sir but I don't know whether it was all done by Hood, under Hood's contract where the powder or explosives were furnished.

Q. You are now making your deposition, as I understand it on page 32 an estimate of your own of the cost of rock excavation and you allow 90 cents a yard for it. Do you or do you not include in that 90 cents the cost of explosives?

A. The explosives are included. Messrs. Getaz and Munding stated from their experience in this town and of similar work, that $1.00 for rock excavation was a fair price, but considering the extent of this job, the conditions and the loose side to it, and from my experience I believe it could be done easily and particularly
2590 at that time, for 90 cents.

Q. I will ask you about Getaz and Munding later; I ask you now what amount of this 90 cents is for explosives?

A. I made no division—no allowance—no estimate in this regard, allowing the contractors provide their own explosives.

Q. Well what do you make it now?

A. Oh that is too indefinite to figure on?

Q. Do you decline to say how much you would allow for explosives in that 90 cents per yard?

A. Well it could run from nothing to 25 cents, I should think, dependent upon a great number of conditions.

Q. Ninety cents would depend on some conditions too, wouldn't it?

A. Well the conditions at that point are favorable for doing the work at 90 cents easily.

Q. Well if you know enough about conditions to know that 90 cents was a fair price for the work, don't you know enough about the conditions to know what part of that 90 cents should be allowed for explosives?

A. With proper management, and in the hands of an experienced and skil-ful foreman of good judgment, the conditions at that work would indicate a very small allowance for explosives but of course a contrary variety of circumstances or conditions could increase this estimate.

Q. I have asked you more than a half dozen questions I think, or something like that in order to ascertain what you would allow for explosives in this 90 cents, and I will ask you to say whether you will or will not answer me on that point?

A. I will not fix any definite price per yard for explosives for this work, as it is subject to entirely too many conditions. I don't believe you could get a rock contractor in this country to give you a fixed price for this charge. I have talked with several and I have been unable to succeed, one railroad contractor telling me
2591 that in 40 foremen everyone differs as to the amount of explosives to put in a given hole.

Mr. CALDWELL: If the court please, this is not responsive to my question.

Q. Well did you find any of them who said that they didn't have to put any explosives in a hole?

A. Yes sir, there are conditions when you wouldn't need any explosives; you could wedge the rock off or up, if it is full of seams and mud-slips, and adapted to that character of work, explosives might not be necessary.

Q. On page 32 of your deposition you have an item where you allow 75 cents for 10 yards of rock excavation. Why do you allow 75 cents there and 90 cents in the other place?

A. Because that is just a little corner of the bluff there to break off, and 75 cents is a very liberal allowance for that little job.

Q. Do you suppose the job was done by itself without any connection with the other work?

A. Yes sir the indications are that it was. It is a place knocked off where the lavatory or water closet was located.

Q. Elsewhere you allowed $2.00 for 236 yards. Why did you allow that?

A. That was for 101 yards in the 24 inch Intake ditch and 135 yards for the Intake tower, where there was probably some water encountered, and we allowed a double price on that account; then I think that is very liberal in consideration of the fact that coffer dams were used and the workmen protected from the water, and that the work was done in the summer time when water wasn't so objectionable.

Q. Was the work on the Intake done in the summer you say?

A. It should have been. It would have been rather bad management to have undertaken that kind of work any other time.

2592 Q. I thought you said in your last answer that it was done in the summer?

A. The indications are that it was from what I see in the record.

Q. What do you see in the record that makes you conclude it was done in the summer?

A. Well I see that it was done in certain years, of course not the particular part of the year, and prudent management wouldn't undertake such work of that kind in the winter time.

Q. Who did it?

A. I don't know.

Q. Work has to be done when the river is lowest, doesn't it?

A. That is the best time to do it, and it is lowest in the summer and Fall—never in the winter.

Q. The river is lowest in the Fall and early winter isn't it?

A. No sir it generally begins to rise in the early winter.

Q. How deep was the coffer dam here?

A. I didn't see it.

Q. Can you blast in a coffer dam?

A. Yes sir.

Q. Did you ever see any blasting done in a coffer dam?

A. Yes sir.

Q. Where?

A. In several places.

Q. Well I ask you where?

A. Well I don't recall just now. Of course you can't blast heavily, but you can blast and particularly if you use some timber for protection.

Q. You never did any work in a coffer dam where you did blasting?

A. O*g* I never did any work in a coffer dam.

Q. You never had it done?

A. Yes sir I have seen it.

Q. And blasting?

A. I think I have.

Q. Don't you know it would be an act of folly to blast in a coffer dam?

A. I know it would not; I know it is entirely practicable. You can blast in the street right in front of a store door if you
2593 choose; you could blast out here in front of this door step if you liked.

Q. Don't you know that work in coffer dams ought to be done by sledging and wedging?

A. It can be done both ways. A man that knows his business can do a great deal of work blasting in a coffer dam with a pile of crossties to protect the work, properly loading his holes.

Q. If you don't remember where you ever saw any blasting done in a coffer dam, are you right certain that you have ever seen it done at all?

A. Well I am not entirely positive that I have been there when the blasting was done, but I am satisfied that it is done. I know it is entirely practicable. I wouldn't hesitate to do it with a good man to handle it.

Q. I understand however that you know nothing about such business?

A. No I am not a blaster.

Q. On page 33 of your deposition you state 549,200 brick and 221600 brick or a total of 770,800 charged by William Wheeler at various prices from $13.00 to $25.00 per thousand and you consider are worth $10.00. Do you mean worth $10.00 a thousand laid complete?

A. Yes sir $10.00 laid complete in the work.

Q. Also you state on page 33 of your deposition that the number of brick seems to be much in excess of the purchases of the brick. To what purchases do you refer?

A. Purchases from the Knoxville Brick Company.

Q. Those testified about by Mr. Ducloux?

A. Yes sir and Mr. Kimball.

Q. What is the date of the first purchase of brick testified to by Mr. Docloux. You will find that on page 3 of his deposition.

A. July 7th 1894 is the first charge on this account against Wheeler & Parks, January 30th 1895 against William Wheeler and January 4th 1895 to the Knoxville Water Company.

Q. Most of the brick work in the plant had been completed
2594 before July 7th 1894, hadn't it?

A. I don't know; I arrived at that conclusion by adding up the brick work that was charged in the years after that time and adding up the purchases, and making a comparison it showed a great disparity.

Q. That however would be a mistake against the Water Company wouldn't it; I mean the effect of Mr. Ducloux's deposition?

A. I don't know; the effect would be to charge for more brick going into the plant than were purchased.

Q. The effect of it is that Ducloux's deposition don't show all the brick, does it?

A. It purports to show all the brick purchased from his company.

Q. I mean it don't show all the brick in the plant?

A. No, I had, as stated in a previous answer only taken into consideration the brick of dates corresponding to these purchases, but since giving that deposition and taking off the quantities from the plans and figuring the same with Prof. Brown, my surmise as to excessive charge of brick is confirmed.

Q. When you first testified in this case how many brick did you find in the plant?

A. I did not undertake to make any estimate of the brick in the plant but simply used the figures reported in the estimate of Mr. Wheeler.

Q. Well those estimates are substantially correct, ar-n't they, and in accord with the actual number of brick in the plant?

A. They are substantially so except at the river station in which his estimate appears to be considerably excessive.

Q. Then that being the case there has been no overcharge for the bricks as to quantity except where you say in your judgment there is an overcharge at the river station?

A. Yes sir this overcharge is at the river station.

2595 Q. But there is none anywhere else?

A. No, the estimate of brick at the filter station is approximately confirmed by the measurements. I have stated in a previous answer there appeared to be 15000 brick overcharge at that station, but in going over the figures again I found I was mistaken, having omitted a quantity of brick, and that the brick shown by the measurements and those by the estimates at the filter station approximately agree, but there is a large disparity at the river station.

Q. What is that disparity?

A. Something like 100,000 brick.

Q. The price of $10.00 for brick laid complete in the work as I understand, covers simply the brick laid in cement and not those in lime?

A. No sir, brick laid in cement.

Q. Does it include those laid in Portland cement as well as ordinary hydraulic cement?

A. Yes sir.

Q. Does it include vitrified brick as well as ordinary brick?

A. No sir.

Q. You found in Mr. Wheeler's deposition, according to your deposition on page 33, middle of the page, charges for brick and cement aggregating 549,200 brick to which you say you have added 221,600 bricks charged as vitrified bricks, which makes an aggregate charge of $14024.65 and you add "which I have allowed at $10.00 as a fair price, which shows an overcharge or excessive charge of $6316.65 on this item." Now where do you distinguish here or elsewhere between the cost of vitrified brick or other brick laid complete?

A. This item relates to common brick in cement.

Q. Don't you say in this same answer from which I have been quoting to you "that I have added 221,600 brick charged as vitrified brick?

A. My memorandum shows that I have added 217,600 brick

charged as vitrified brick which I did from the fact that I found charged 260,500 vitrified brick, and that the purchases from the Knoxville Brick Company of vitrified brick aggregated 42900
2596 brick which I deducted from the total and counted the balance of the brick as common brick.

Q. You mean you counted the balance of the vitrified brick as common brick?

A. Yes sir Mr. Kimball testified that all the purchases of vitrified brick came from the Knoxville Brick Company and the account of the Knoxville Brick Company disclosed only 42900 brick.

Q. Well you know now that this statement on page 33 is wrong so far as vitrified brick is concerned?

A. Yes sir we have found more vitrified brick than that in the plant.

Q. Then how would you correct this estimate here?

A. I would deduct the vitrified brick improperly charged to common brick.

Q. How many vitrified brick did you intentionally change to common brick when you first testified?

A. 217,600.

Q. Well how many did that leave of vitrified brick in the plant?

A. 42900.

Q. And you treated that many as ordinary bricks or as vitrified bricks?

A. We treated the 42900 as vitrified brick.

Q. Well now where did you do that and where does it appear that you made any difference in the price on that account?

A. My report of overcharge or excessive charge is that much less on account of that allowance. If I had changed all the vitrified brick to common brick the overcharge would have been enhanced to that extent.

Q. Now look to your second answer on page 33 of your deposition and say if it is not a fact that whatever vitrified brick you have allowed the water company are treated just as ordinary brick,
2597 and allowed for at the same price as ordinary brick?

A. No, only the vitrified brick charged in the estimates in excess of the vitrified brick shown in the statement of purchases I treated as common brick.

Q. That is 42000?

A. 217,600, and the 42900 still remain as vitrified brick as charged.

Q. What price do you allow on this 42900 vitrified brick?

A. They are charged at from $20.00 to $25.00 and $27.50, which prices I didn't disturb.

Q. On page 33 of your deposition?

A. No there is no mention of brick not overcharged or excessively rated in the estimates, my answer in the deposition relating to excessive estimates or overcharges.

Q. How much was the overcharge on the 549,200 bricks referred to by you on page 33 of your deposition?

A. I think I stated $6316.65; my memorandum here is more than that.

Q. That is ordinary brick?

A. That is ordinary common brick laid in cement.

Q. Now what is the overcharge on the 221,600 brick charged as vitrified brick?

A. The effect would be that they would be overcharged to the extent of the difference in price allowed for common brick and price allowed in the estimate.

Q. Will you deny that this second answer of yours on page 33 of your deposition treats common brick and vitrified brick exactly alike and makes no distinction whatever as to prices between common and vitrified brick?

A. I do not; as the number of vitrified brick there considered, but as before explained changed the excess charge of vitrified brick to common brick laid in cement and reduced the vitrified brick to the same basis.

2598 Q. So you did treat vitrified brick as common brick?

A. I endeavored to correct the charge with the information before me—the charge for vitrified brick was very excessive, being about this quantity of brick in excess of the purchases, which appeared to be an erroneous charge for vitrified brick.

Q. The effect of this answer then on page 33 of your deposition to which I have been referring is to allow us for vitrified brick, laid complete, $10.00 isn't it?

A. Yes sir it is, if the brick charged as vitrified brick were vitrified brick.

Q. Well how would you correct that statement now?

A. By reducing the amount for vitrified brick so as to cover the number of vitrified brick we found in the plant.

Q. How much larger would that make the allowance that you would make to the Knoxville Water Company on account of brick?

A. The effect would be to increase the allowance by about $6.00 per thousand on vitrified brick.

Q. And what number of vitrified brick do you now allow?

A. I don't recall, as I hav'n't the memorandum with me, but we found that there were more vitrified brick in the plant than was shown as purchased from the Knoxville Brick Company and that there is some discrepency between the purchases of vitrified brick there shown and Mr. Kimball's statement and the vitrified brick that appear to have been used, which he can no doubt explain.

Q. When you lay vitrified brick in Portland cement, what elements besides the brick themselves enter into the calculation?

A. Labor, cement, scaffolding, water, &c.

Q. How much do you allow for the vitrified brick per thousand in your estimate?

A. In my estimate of overcharge I didn't correct the

2599 charges for vitrified brick remaining.

Q. So you have made no price in your estimate anywhere for vitrified brick?

A. Not in this estimate; in the estimate of cost of replacement of the plant, we have.

Q. Abandoning the question as to the cost of laying vitrified

brick under the statement of the witness, I ask you what you allow as of the date that you were testifying about when you first deposed in this case, for 1000 hard brick at the kiln, what you mean by common brick?

A. Up to 1892 I figured the cost of brick at $7.00, from 1893 to 1898 at $5.50, from 1900 to 1901 at $6.00 and adding thereto the other elements.

Q. I am not asking about the other elements; I want the brick at the kiln?

A. The foregoing prices are estimated prices delivered at the work.

Q. And you don't know what they would cost at the kiln?

A. No sir I didn't care for that as I found that they were delivered at these prices and less at this time.

Q. Now in making up your $10.00 charge on page 33 of your deposition, what did you allow for the brick delivered on the ground?

A. The prices I have recited above.

Q. Well that would vary the price of $10.00 you fixed; which one of the several items, or what amount independent of them goes into your $10.00 estimate as the cost of the brick delivered?

A. I reached an average price of $10.00.

Q. How did you reach it?

A. For the period up to 1892, I used the cost of brick on the ground at $7.00, and from 1893 to 1898 at $5.50 and from 1900 to 1901 at $6.00, and apportioning the quantities used during those three terms I reached an aggregate cost for each term.

2600 Q. I don't want the aggregate cost but I want to know the price of the brick?

A. Well I have given you that.

Q. Well what is the cost of the brick delivered on the ground as computed in your $10.00 estimate, $7.00, $5.50 or $6.00?

A. All three of them.

Q. Then you adopted an average of those three prices?

A. An average of the prices reached, using those prevailing during these three terms, and applying the same to the quantities and securing an aggregate, and dividing it by the total brick work, I reached a price under $10.00 but adopted $10.00, or where it was less than $10.00 I adopted $10.00.

Q. Now what quantity did you use at $7.00?

A. I used 75,000 brick at $10.00, 156,000 brick at $8.00, 2,300 brick at $12.00 and 3,500 brick at $15.00, which secured an aggregate of $2550.60 for 268,300 brick and adopted $10.00 as an average price.

Q. Now is that for the brick alone? or brick laid complete?

A. For brick laid in the wall.

Q. What I have been asking you for all the time is for brick without the labor and material used in laying?

A. Well I gave you that for the three terms, being $7.00, $5.50 and $6.00.

Q. How many brick at $7.00 a thousand?

A. I didn't figure them that way. I figured them after I added the other elements of cost to them.

Q. Then you don't know what the kiln price or the price delivered upon the ground was?

A. Yes sir I ascertained the prevailing prices at those times and learned that brick during the first construction were being delivered at buildings around here at $7.00 and less, and I therefore
2601 allowed $7.00, and during the second period they were delivered at $4.80, $5.00 and $5.50 and I allowed $5.50, and in the third period they were from $5.00 to $6.00, and I allowed $6.00.

Q. Well you have allowed 75,000 brick at $10.00 a thousand; you mean by that that you allowed those 75,000 brick at $10.00 laid complete in the walls?

A. In the walls.

Q. Now what do you allow for the bricks themselves without any work?

A. Well that contemplates brick at $7.00.

Q. Well what do you allow for the labor on them?

A. On that basis I allowed $1.75, as rates for labor were very much less then than they are at subsequent dates.

Q. How much do you pay for masons?

A. Well that pays mason, bricklayer and all.

Q. How much a day do you allow for your mason?

A. Well they were in profusion at that time from $2.50 down.

Q. Well what do you fix in this estimate here?

A. I don't remember but I think I fixed $2.50.

Q. And how many brick would you have one of them lay in a day?

A. From 1500 to 2500; it is owing to the character of the work.

Q. What was the character of work these bricks were laid in?

A. It was simple character.

Q. Well what item of construction in the works was it?

A. Well it was the foundation and walls of the engine and pit house and boiler house and work of that character which was plain and simple and heavy and on which bricklayers could make rapid progress.

Q. And do you know what particular number of brick you allowed him to lay in a day in this estimate?

A. I think I figured that at probably an average of 2000
2602 brick; it might have been 1700 or 1800; I didn't make a very close analysis of this brick laying as we did in the cost of replacement as I had other evidence to go by, being the brick prices at which brick work was being done around here, in which brick were laid in the wall all around here at $6.00, $7.00 and $7.50.

Q. Did you allow your brick mason a helper?

A. Of course.

Q. What did you pay him?

A. $1.00 a day.

Q. And how many helpers to one mason?

A. That depends upon the character of the work.

Q. How many did you allow on this?

A. Usually it takes one—generally one helper is all that is re-

quired to wait on the mason, and keep up the scaffolding, and one mortar maker to about six brick masons and sometimes ten.

Q. How many helpers did you allow in this estimate?

A. One at $1.00 a day.

Q. How much cement to the thousand brick, and what would it cost?

A. Well that runs from a barrel to a barrel and a half.

Q. Well how much did you allow in this case?

A. My recollection is I allowed a barrel of Portland cement and a barrel and a half to two barrels of Louisville cement, and Louisville cement I bought at 27 cents and 29 cents a barrel at Louisville those times. The freight to Knoxville would be not exceeding 40 cents, and the drayage on it probably five cents a barrel which would make say 72 to 75 cents a barrel for Louisville and I bought Portland cement in those days at $2.25 at Nashville and it couldn't have cost more than 25 cents more at Knoxville which would be $2.50 for imported Portland, and American less.

Q. What would you allow for staging per thousand bricks?

2603 A. Well that usually depends upon the character of your work; down there there was a lot of that work that wouldn't need any and some of it more—probably as much as five cents a thousand.

Q. Well how much would you allow for water?

A. Well there is no water item except to carry the water there.

Q. Well it would cost something to carry it, wouldn't it?

A. Yes sir, water, staging and everything shouldn't exceed over ten cents; usually the masons' helper ought to do the scaffolding.

Q. How much would you allow for sand per thousand?

A. Well it was easily bought at that time at 25 cents, I understand.

Q. How do you know?

A. A man that handled it and used it told me so.

Q. I will ask you to give the names of some of the men that told you that?

A. Well Mr. T. W. Kellar was one of my informants.

Q. Delivered to the water company?

A. On the barge there at the pump station.

Q. The pump station is 40 feet above the river, isn't it?

A. Well above low water it is.

Q. And some of these brick went into the filter plant, didn't they?

A. Well we have been discussing the brick laid in cement mostly which was at the pump station. Of course sand at the filter station costs from 50 to 60 cents a yard delivered, and other brick men and brick contractors verify these prices as current in Knoxville during the low times of 1883 to 1895. I understand barge loads of sand can be obtained at the river now at 25 cents.

Q. Were any of the brick allowed by you at higher prices

2604 than these 75,000 that you charged at $10.00?

A. I find that that 75,000 brick applied to brick in lime and wasn't my figures laid in cement. I turned to the wrong place in giving that. The 75,000 brick don't apply to brick in cement.

Q. And you say this 75,000 brick wasn't laid in cement at all but in lime? or your prices were that?

A. Yes sir; I hav'n't my pad here with me which I seem to have quoted from.

Q. And you cannot give me your estimate laid in Portland or Louisville cement?

A. Oh yes I will furnish you an estimate of it the way I made it up.

Q. Well I will ask you to bring an analysis of that amount in then?

A. I will bring it in in the morning.

Q. On page 34 of your deposition you reduce William Wheeler's estimate on 195,000 brick and continuing on page 35 you say you reduce the price to $8.00 on 231,000 brick, to $12.00 on 2300 brick, and to $15.00 on 35,000 brick, the total of these last three quantities being 268,000 brick. Now which quantity are you using, the 195,000 on page 34 or the total of 268,300 on page 35?

A. On page 23, charge for engine house wall 75,000 brick at $13.00, $975.00; on page 26 foundation of tool house 1200 brick at $15.00, $18.00 and on page 27 foundation of store house 1100 brick at $15.00, $16.50; page 59, engine house 27,000 brick at $13.00, $351.00; on page 60 boiler house 32,000 brick at $13.00, $410.00; on page 60 engine house 16,000 brick at $13.00, $208.00; on page 90 boiler house 18,000 brick at $13.00, $234.00; on same page closing openings 3000 brick at $39.00 and filter station page 50, settling basin 62,000 brick at $13.00, $806.00; page 51, chimney
2605 35,000 brick at $18.00, $660.00 making a total of 270,300 brick at $3717.50.

On the first item of 75000 brick Messrs. Munding and Getaz reported an overcharge of 2000 brick according to their measurements which I deducted, which left 268,300 brick charged at $3717.50, which I stated was an overcharge, and should be 231,000 brick at $8.00, $1848.00, 2300 brick at $12.00, $27.60, 35000 at $15.00, $525.00, 7500 at $150.00, making a total of $2550.60 and an overcharge of $1166.90 as stated in my answer on page 35.

Q. You hav'n't answered my question. I asked you which item you were testifying about on page 34 of your deposition; is it the 195000 brick on page 34, or the total of 268300 brick on page 35?

A. All the brick laid in lime which appear to include both the items and reaches an aggregate of 268,300 brick.

Q. So that what you are testifying about is 268,300 brick?

A. Yes sir all the brick laid in lime.

Q. Now how much do you say the overcharge is?

A. $1166.90.

Q. What was the aggregate price of the 268,300 brick?

A. Charged or allowed?

Q. Charged?

A. $3717.50, and the price allowed is $2550.60.

Q. Now how do you make up your aggregate of $2550.60; I understand that it is by adding the amounts that you charge for the

several items or quantities of brick that you have set out above, is that right?

A. Yes sir & in correcting one of the charges by 2000 brick.

Q. Now the price that you fix on these brick laid in lime includes vitrified as well as common brick, don't it?

A. No sir it does not; it is common brick in lime and not vitrified.

2606 Q. How do you dispose of the vitrified brick laid in lime; don't you allow $12.00 a thousand for two small jobs?

A. Yes sir $12.00 and $15.00, but they were not vitrified brick I don't think.

Q. Well I will ask you if they were not?

A. No in this account I have not molested the vitrified brick, leaving them as charged.

Q. At what prices?

A. $20.00, $25.00 and $27.50.

Q. Now where were they laid?

A. Well they are charged as having been laid in the engine house, boiler house, foundations at the river station and in the settling basins, filter house building and chimney at the filter station.

Q. What did it cost to lay those bricks per thousand; the bricks which you have just been testifying about?

A. I allowed 231,000 brick at $8.00.

Q. For laying them?

A. For laying them; I mean for the brick laid in the wall.

Q. Now what items does that $8.00 include?

A. It seems to include all the brick except——

Q. That is not what I mean; I mean what is the allowance that goes to make up that allowance of $8.00?

A. I should state that it includes all the charges of common brick laid in lime, except two small jobs allowed at $12.00 and 35000 brick laid in chimney at $15.00.

Q. That is not what I want. I want you to analyze the $8.00 and show how you built up that $8.00 as the cost of laying those brick?

A. I don't think I made an analysis of that lime and mortar brick. I adopted the depositions of brick contractors and people who are experienced in that work here and were engaged in the business at that time and who had testified that it could be done and was done at $8.00.

2607 Q. Who do you mean?

A. Well I mean more emphatically than any body else Mr. Getaz and Mr. Munding who testified in relation to this particular work in comparison with other work in the town, but I have also conferred with other brick me- and corroborated them, and even found lower prices than they allowed.

Q. You rest your judgment on Messrs. Getaz and Munding don't you?

A. I am content to do so in some particulars with regard to technical work with which they were familiar and experienced and had done in this place under the conditions encountered here, as being the most reliable evidence and most practical valuations obtainable.

Q. On page 35 of your deposition you refer to 17 yards hydraulic cement concrete as appears on page 44 of William Wheeler's deposition at $4.25 a yard, $72.25; also to 22.7 yards of the same page 54 of William Wheeler's deposition at $4.50, $102.15; also 103.6 yards Portland cement, page 83 of William Wheeler's deposition at $7.50 a yard, $777.00; also 460 yards Portland cement page 94 Wheeler's deposition at $9.00 a yard, $4140.00; also to 677 yards Portland cement page 46 William Wheeler's deposition at $6.50 $4400.50; also 53 yards Portland cement page 58 Wheeler's deposition at $6.50, $344.50. You allow the first item that I mention to you where the charge was $4.25 a yard to remain unchanged in your estimate?

A. Yes sir I didn't correct this charge as excessive.

Q. Nor you didn't correct the next charge where the price per yard is $4.50 did you?

A. I did not.

Q. But you did correct all the other items that I read to you where the charge per yard is larger?

A. Yes sir I reduced the 103.6 yards charged at $7.50 to $5.00 a yard, and the 677 yards charged at $6.50 to $5.00 a yard and the 35 yards charged at $6.50 to $5.00 a yard and the 460 yards
2608 charged at $9.00 to $7.00 a yard which made an aggregate allowance of $7472.40 against $9836.40 charged.

Q. I am not asking about those facts; you can put them in if you want to; I don't care anything about them?

A. Well I will stop then.

Q. Now why did you reduce the $6.50 charge per yard to $5.00?

A. Because that was as much as the concrete ought to cost and did cost.

Q. Where was it laid?

A. It was laid at the engine house and at the engine house wall, and some of it at the settling basin and 460 yards is charged for the intake tower.

Q. Now that particular concrete was mostly laid at the engine house at the river, wasn't it?

A. Yes sir these items were mostly at the river station.

Q. What did you allow on the $9.00 a yard item?

A. $7.00 a yard.

Q. That was out in the river?

A. Yes sir, at the intake tower.

Q. Where was the first item laid? The first item of concrete of 17 yards?

A. That is the chimney foundation which is gone however, that I couldn't tell anything about.

Q. How about the second item of 22.7 yards; where was it put?

A. That appears here under the head of River Station as foundation to Deane Pump, but it is the same quantity as the Deane Pump Filter Station engine.

Q. It is a pump engine isn't it?

A. Well it is a pumping engine. I didn't disturb those two items in this instance.

Q. Now if $5.00 is a fair price for so much of this concrete the last

two items making something over 700 yards, why isn't $5.00 a fair price for these first two items?

A. Because they were simply little jobs that were done
2609 perhaps with Louisville cement and prices charged are high, or high enough.

Q. Do you mean they are high or high enough?

A. They are both.

Q. They are too high then are they?

A. Why I think they could have been done for less, but as the quantities were small I didn't raise any objection to them.

Q. Any more trouble than putting in the concrete at the engine house than there is at the Pump foundation or chimney foundation?

A. Well I assume that they used a stronger cement.

Q. Why do you assume it?

A. Because it would have been proper to have done so.

Q. It would have been proper you say to have used a stronger cement for the engine house foundation than the chimney foundation?

A. Yes sir as the chimney was simply some old boilers that were set up down at the river and not a great deal of weight to them.

Q. What chimney are you talking about?

A. I am talking about the chimney at the river.

Q. Look at page 44 of Mr. Wheeler's deposition and see what that item refers to won't you?

A. Well that is another chimney; it is a brick chimney at the filter station and not the old boiler stack.

Q. Don't that need a stronger foundation than the ordinary wall foundation?

A. No, the Louisville cement would have been ample for that purpose; it is usually used for such.

Q. How do you get the Louisville cement into this cement?

A. Mix it in with the sand and broken stone.

Q. How do you know it is in there, is what I mean?

A. By the price charged. If they had used Portland cement or an expensive cement they would have charged a higher
2610 price.

Q. What price would they have charged?

A. Oh no telling; the way they charged for the intake tower, they might have charged $10.00 or $15.00 if they had used Lagerdoffer or Dykerhoff imported cement.

Q. Now what were the $6.50 items laid in; what kind of cement I mean?

A. Well it could have been laid in part of Louisville and part in Portland to very good advantage; Louisville or Georgia or American Portland would have answered for most of that work.

Q. What did you consider it as being laid in?

A. Well I allowed Portland cement at $2.40 a barrel which was a full price at that time.

Q. Can you give me the elements that enter into your allowance of $5.00 a yard for concrete?

A. Yes sir.

Q. Well what are they?

A. Six barrels of cement at $2.40, $16.80; four yards of sand at 75 cents, $3.00; five yards of stone or spawls or broken stone which I put in at 75 cents, $3.75, which would make six yards of concrete, being $3.93 for the materials, and added $1.07 for labor and lumber, &c., making $5.00.

Q. What proportion of cement, sand and rock do you use in making up this concrete?

A. Well that is based on 1, 2 and 5 it looks like, or 1, 3 and 5.

Q. How many cubic feet are there in a barrel of cement?

A. Well that varies, as Louisville cement weighs 265 pounds, American Portland from 350 pounds to 360 pounds and some of it 400 pounds, and imported 380 pounds.

Q. Well how about the cubic feet?

A. These contractors around here generally figure about a barrel and a half to the yard which makes pretty rich cement.

Q. Give me the cubic contents of a barrel of Portland cement?

2611 A. Well I would have to refer to one of your hand books that Mr. Kimball and Mr. Wheeler uses to give that.

Q. You don't know that Mr. Wheeler and Kimball use any hand books, do you?

A. Well it seems they have, as all engineering people use them that I have seen.

Q. In other words you can't give me the cubic contents of a barrel?

A. No not from memory. I don't need it when a barrel and a half will make a yard of good rich cement—I don't need it. Prof. Brown will give you all of that.

Q. The truth is Mr. Nixon that you don't know, isn't it?

A. Oh I can't remember it unless I would refer to the book and see as there are four or five different quantities to estimate.

Q. Can you work it out from any given assumption?

A. Oh yes I can bring you a memorandum.

Q. I mean can you work it out now assuming any particular size or weight per barrel?

A. Yes sir I perhaps could do it if necessary but in explaining the formula used above, I gave you the quantity of cement used, but I didn't consider that the weight or cubic feet were essential; in fact some of the best cement makers I have ever seen were ignorant negroes that couldn't read nor write yet could mix up first class cement.

Q. You don't know very much about it do you Mr. Nixon?

A. I don't bother with those chinqua-pin points of that kind.

Q. You refer to William Wheeler's deposition as follows on page 23:

725 sq. ft.	at	16⅔c	$122.50
Page 52,348 sq. ft.	"	"	58.00
" 52 530 "	"	"	88.33
" 52 655 "	"	"	109.17

2612

Page 54	182	sq. yds.	at	$2.00 (6 in thick)		364.00
" 56	415	"	"	"	1.50	622.50
" 58	105	"	"	"	1.50	157.50
" 60	42	"	"	"	1.50	63.00
" 62	86.5	"	"	"	1.50	129.75
" 83	222.3	"	"	"	1.00 (plastering 2.00)	223.00
" 83	98⅓	"	"	"	2.00 (6 in.)	196.67
" 89	400	sq. ft.		"	.16⅔c	66.67
" 90	400	"	"	"	"	66.67
" 91	34	sq. yds.	"	1.50		51.00
" 91	50	"	"	"	1.50	75.00

On page 36 of your deposition you allow $1.00 a yard for all these items making a total overcharge in your judgment of $821.15. You thus allow item 10 plastering to stand, and you reduce item 5 and item 11 to $1.00 a yard from $2.00, making with the reductions that you have made on items not specifically mentioned, as we calculate it $817.00. See if that is not correct?

A. No, the quantity involved reduces .16⅔ cents a foot & $1.50 & $2.00 a yard to $1.00 a yard amounts to $1582.27 where $2391.76 is charged, being an overcharge as I figure it of $809.49 on the price, and 105 feet short in measurements as testified to by Messrs. Getaz and Munding, where they say that there is only 630 feet where 735 is charged, making an overcharge of $11.66, which added to the $809.49 mentioned, makes a total overcharge on this account of $821.15 as testified on page 36.

Q. Where in your deposition is that shortage of measurement referred to?

A. I didn't point that out in my answer. It is included in my overcharge, but the answer is general and just refers to the charges.

Q. Then that which is in your answer does not support the result that you reached but you muct add the shortage of measure-

2613 ment also?

A. Yes sir the $11.65 to make up that overcharge.

Q. And that is dependent upon the testimony of Messrs. Getaz and Munding?

A. Yes sir, they testified that they measured this item and found it 105 square feet short.

Q. Whereabout in their depositions do they say that?

A. On page 84 they say, "cement floor 735 square feet at 16⅔ cents, $122.50. We find only 630 square feet or 70 square yards at $1.25 per square yard $87.50, an overcharge of $35.00."

Q. Now is that the same overcharge you have been testifying about?

A. Yes sir that is where I got my correction of measurement.

Q. Can you make up by items a square yard of this cement flooring?

A. Yes sir I can give you my formula.

Q. With prices attached?

A. Yes sir.

Q. Give it to the stenographer please?

	Louisville or Ga. cement.	Louis. ce.	Louis. ce.
Bottom	2.25	2.50	2.75
4 in. thick	.25	.28	.31
Top of Portland	4.00	4.35	5.00
1 in. or 1/12 yd	.35	.36	.42
Labor	.10	.10	.10
Making a total of	.70	.74	.83

which I have used as applicable in this case, but have allowed $1.00 a yard instead of 70¢ 74¢ or 83¢. There is a much cheaper and some architects and engineers think a better floor concrete can be made by the use of boiler cinders instead of stone as one of the aggregates.

Q. Don't you know that all of this work you have been testifying about, cement floor, is of Portland cement?

A. Well I have used Portland cement top.

2614 Q. Don't you know that all the way through it is Portland cement except at the bottom?

A. Well it wouldn't be necessary, and even if it was, it would not make my price too low as has been shown in other instances, as you found in the Chattanooga case that $1.00 a yard was the cost of concrete floors 6 inches thick, and in other instances I have found it has been done for 90 cents, some of it Government work under strict specifications, and for filter house purposes.

Q. Whose formula have you used?

A. The formula above set out is the one I made up, but the books of cement people are filled with formulaes for these purposes and for walks and pavements and other work of this character.

Q. You allow only part of this as Portland cement and still say that if it was all Portland cement your prices would still be right?

A. Yes sir I have shown that if the composition had been as suggested in the foregoing formula that the price would have been very much less than the price I allowed, but I considered that $1.00 per yard would be ample for a substantial cement floor of adequate thickness.

Q. Did you take into consideration the fact that part of this was 6 inches thick?

A. Yes sir I considered that it was all from 5 to 6 inches thick.

Q. Didn't your testimony figure on 3 or 4 inches?

A. The formula above given aggregates 5 inches, and another inch at the bottom of cheaper material would not have enhanced the cost very much.

Q. Would the terms of the specifications, details of the plans &c., make any possible change in the cost of work of this material?

2615 A. It might; I found no specifications however covering the composition of this work.

Q. Does the amount bid for an item entering into the construction of the work composed of numerous items necessarily bear any relation to the fair cost of such item to the contractor?

A. It might and it might not; that would depend upon circumstances.

Q. You hav-n't found those omitted items called for heretofore by me, have you?

A. No I hav-n't attended to that yet. I think I will try and get them up for you this evening.

The further taking of this deposition was adjourned until Wednesday morning, October 28, 1903, at 9:00 o'clock A. M.

2616 WEDNESDAY, *October* 28, 1903—9:00 o'clock a. m.

Continuation of cross-examination of W. M. NIXON.

By J. W. CALDWELL:

The WITNESS: I am now ready to report on the pipe question.

Q. What I want Mr. Nixon is a statement giving the years and pages from William Wheeler's deposition where he has charged pipe from $25.00 to $35.00 when the market price was from $13.00 to $25.00, and I only wish a statement from you in the cases where you differ from Mr. Wheeler's prices?

A. On page 75 of William Wheeler's deposition he furnishes an estimate of the cost of 3, 4, 6, 8 and 10 inch pipe, aggregating 7473 feet charged at footage prices which he says was based on $17.00 a ton, except the 3 inch pipe based on $20.00 a ton. The records or books show that the purchases of pipe for that year was at from $16.10 to $18.60 a ton delivered at Knoxville, the purchases made by me during that time were at from——

Mr. CALDWELL: I object to that. I want the market price and not your purchases.

COMMISSIONER: You can easily answer that without giving your source of authority.

Q. Let me repeat the original question to you as it appears on page 281 of your deposition, "Now you say on page 21 that you have found that pipe was charged from $25.00 to $35.00 a ton when the market value was from $13.00 to $25.00. I wish you would give the stenographer the years and pages of William Wheeler's deposition where pipe has been charged from $25.00 to $35.00 per ton in all cases where you differ from him, and state the market prices for each of the years you mention when you say it was from $13.00 to $25.00 per ton?"

2617 A. On page 80 for the year ending March 31st, 1900 Mr. William Wheeler in his estimate charges for 3, 4, 6, 8, 10 and 12 inch pipe aggregating 20012.4 feet at footage prices from 39 cents to $1.51 a foot, which he states is based on pipe at $28.00 a ton, except 3 inch which is $32.00 per ton. The purchases shown by the books and bills during that time are at $22.60 and $27.25 and in some instances $27.75. The pipe could have been bought in the market during that time for from $14.00 to $15.00 at Knoxville.

On page 86, January 1st, 1900, Mr. William Wheeler estimates the cost of the Lonsdale-Beaumont pipe running from 3 inches to

12 inches in size and aggregating 52757.8 feet charged at footage prices of from 33 cents to $1.29 a foot, which he says was based on $25.00 per ton. This pipe was bought five years before at $23.00 per ton, and could have been purchased during the year for which the estimate was made at from $13.00 to $15.00 per ton—say $15.00 at Knoxville.

On page 95 Mr. William Wheeler estimates pipe for the year ending March 31, 1901, the pipe running in sizes from 3 inches to 20 inches and aggregating 25535.7 feet and charged at footage prices at from 35 cents to $3.00 a foot, which he says was based on pipe at $27.00 a ton; the books show the purchases during that year at from $22.60 to $23.00, and some as high as $27.75, and Mr. Kimball states in his testimony that the market price of pipe at that time was from $22.00 to $23.00, but my conclusion as to the market price of a large amount of pipe was from $18.00 to $19.00 at Knoxville, as the ruling price of pig iron from which it was made at the time was down as low as $10.00 a ton.

Q. What year do the prices on page 80 of Mr. William Wheeler's deposition apply, 1890?

A. No sir he says for the year ending March 31, 1900.

2618 Q. On page 80?

A. Page 80 I think. I took it from another tab.

Q. Now you say that pipe could have been bought at Knoxville from $14.00 to $15.00 a ton?

A. Yes sir it was bought at Mobile for $13.00 f. o. b. Chattanooga.

Mr. CALDWELL: The court has instructed you this morning not to mention these particular transactions and I object to the Mobile matter.

Q. Referring to items on page 86 of Mr. Wheeler's deposition you say that the pipe there referred to could have been purchased during the year for which the estimate was made at from $13.00 to $15.00 at Knoxville. For what year do you treat that estimate as having been made?

A. The year 1899.

Q. Don't you know that the estimate is made for the year during which the portions of the pipe appearing in different parts of the analysis were respectively made?

A. That statement would apply in other instances but it does not appear to apply to the Lonsdale-Beaumont construction, which was not made by the Water Company but came into the company by purchase.

Q. Now please look to page 40 of Mr. Wheeler's deposition and see if you don't find this: "The Lonsdale-Beaumont works originally completed during this time, that is the year ending March 31st, 1894, are accounted for and scheduled separately down to the time when they were acquired by the Knoxville Water Company in 1900?

A. Yes sir that agrees with my contention that the estimated valuation was of, and applicable to the year 1899 as Mr. Wheeler states that it is of date Jan. 1, 1900.

Q. Where does he state that?

A. On page 84.

Q. What does he say about it?

A. "Lonsdale-Beaumont works. Total physical plant at the time of purchase as of January 1st, 1900 and here accounted as of the fiscal year ending M'ch 31, 1900."

2619 Q. You state on page 37 of your deposition that the valuation placed by you on the various items there shown, is entirely upon the testimony of Messrs. Getaz and Munding, is that correct?

A. Yes, I made this statement; I was referring to the cost of window frames, windows and doors and frames, wood floors, stairs and railings, lumber, carpenter work, painting, oiling, hardware, nails, &c.

Q. Was your statement prepared before or after the cross examination of Messrs. Getaz and Munding in this case?

A. I think it was prepared afterwards.

Q. You state further that you base the lumber reduction upon a comparison of prices charged by the parties that furnished it. Now I will ask you to show any item in William Wheeler's deposition of lumber charged and identified with any bill, voucher or book entry, showing the price actually paid for such lumber?

A. I had the itemized statement of account of the Rose Lumber Company, showing the prices at which lumber was charged, and these are the comparisons to which I referred, which prices were also consulted by Messrs. Getaz and Munding.

Q. Where did you get the itemized bill of the Rose Lumber Company?

A. I got it from Gen. Pickle.

Q. Was it the property of the Knoxville Water Company?

A. No sir it purported to be a statement of accounts from the books of the Rose Lumber Company of lumber that had been furnished by that company to the Knoxville Water Company.

Q. Is it in this record anywhere?

A. I really don't know.

Q. Is it in your possession now?

A. I think I have it now and can furnish it.

Q. Now can you identify that bill as referring to any item considered in your deposition?

A. No I don't know that I could—I might—but I did not attempt to do so before, preferring to accept the statement of Messrs.

2620 Getaz and Munding as experienced men, and men and contractors in that line of work who were here at the time engaged in the business and conversant with the value and market price of such lumber, which evidence was sufficiently conclusive to me.

Q. But you say on page 37 "I base also the lumber reduction upon a comparison of the prices charged by the parties that furnished it." Now when we get down to the absolute fact, you had a statement from the books of Rose and Company, and from no other parties, didn't you?

A. I saw some prices of lumber on the books of the Water Company in addition, of lumber probably purchased from some other parties, I don't remember who.

Q. But were you not making this broad statement solely upon your examination of this account from the books of Rose and Company?

A. Yes sir this statement was largely based upon the prices recited in the itemized account of Rose and Company for lumber which they had furnished the Knoxville Water Company during these years, but as before stated, my conclusions were based more upon the evidence of Messrs. Getaz and Munding, together with the comparisons they had made with this account, as they had examined the same, in connection with their estimates of the value and proper prices for this lumber.

Q. What was the date of the first purchase by the Water Company from Rose and Company?

A. I would have to refer to the statement to give you that.

Q. They were all recent purchases, were they not?

A. No sir, they were purchases back in the nineties is my recollection.

2621 Q. A good deal of the construction to which lumber was applied was in the eighties, wasn't it?

A. Not very much of it. I have a list of the lumber charged which shows the year and page.

Q. Had the Knoxville Water Company bought any lumber from Rose and Company prior to 1899?

A. I would have to refer to the account to answer that question.

Q. In the matter of brick paved floors, on page 25 of William Wheeler's deposition is an item of $97.50 and on page 63 is an item of $96.00, which items you reduce to $75.50. Please state the reasons for each of said reductions?

A. I base my reduction upon the statement of Getaz and Munding, page 86, where they say, "brick paved floor charged at 7500 brick is $13.00, $97.50. The price of $13.00 is excessive as $8.00 is a fair price. Should be brick 7500 at $8.00, $60.00." On page 98 they say "80 yards of brick paving in cement charged at $1.20, $96.00; should be at 75 cents a yard, $60.00, an overcharge of $36.00." I adopted this evidence of these practical workmen, experienced in this line of work and familiar with the conditions at Knoxville, and also upon the estimates of brick paving at other places where it was found to be $1.00 a yard, and the further fact that 38 brick flat will pave a quare yard, and 52 brick on edge will pave a square yard, and at practical prices this paving should not exceed the prices that these gentlemen have fixed based on their experience in this city at the time this work was done.

Q. How were these bricks laid, on edge or flat?

A. The first item is charged as brick on edge, and the second item don't state.

Q. You didn't examine the place yourself?

2622 A. No sir I did not; I took it that these gentlemen, Messrs. Getaz and Munding did, as they went to do so.

Q. Where, in William Wheeler's deposition are the items of sheet steel and iron that you have reduced us on to the extent of $168.79?

A. On page 27 of Mr. Wheeler's deposition he charges for coal

chute the year 1893 13,092 pounds of quarter inch plates at 3 cents, $392.76.

Q. Three cents for what?

A. Three cents per pound.

Q. Well how is it, erected or delivered on the ground?

A. I suppose it was erected. The erection amounted to nothing.

Q. Don't the deposition show it was erected?

A. No it states only, as I remember, a charge for the plates under the head of "coal chute."

Q. Well look at his deposition and see if it don't say erected, it appearing on page 27?

A. Yes sir.

Q. Now had you finished your former answer?

A. I think not. And I ascertained that this plate could have been bought for less than 2 cents at that time, and can today, and I noted an excess charge of 1 cent a pound, $130.92, on this item.

Q. Now when you made this statement in your answer in your examination in chief and reduced the water company by the amount indicated, you were treating the steel as simply delivered on the ground and not erected, were you not?

A. No I considered that 2 cents would be a full charge erected.

Q. What was the market price of this steel at the time it was put there?

A. I don't recall. I ascertained at the time I made that charge the exact figures but I don't recall now. I know it was under 2 cents, and I know of testimony of erected steel at $1.78.

2623 Mr. CALDWELL: Counsel for plaintiff calls attention to the fact that the witness again mentions particular instances, and having already objected to statements of that kind, counsel for plaintiff will desist from his effort to keep such improper testimony out.

Q. How nearly can you approximate the market price at that time?

A. My recollection is it was about a cent and a half a, pound at that time, and that from a quarter of a cent to three eighths of a cent would erect it by laying it up on the trestles as this was done and spiking it down.

Q. How do you know it was done that way; you never saw it did you?

A. I have seen a photograph of it, but I have never seen the specifications, if there were any.

Q. Have you got the photograph?

A. No sir but Mr. Kimball has.

Q. What are you referring to now as the construction into which this sheet steel went?

A. The old long coal chutes from on top of the hill down to the Pump Station.

Q. The present one or the former one?

A. It was one of the former chutes as there has been two or three coal chute arrangements, so it appears.

Q. Which did you refer to in your examination in chief on this point, the old chute or the new one?

A. I referred at that time to the new chute, but I found afterwards I was mistaken about this sheet steel being in the new chute. I based my conclusion on that point from the fact that in Mr. William Wheeler's statement of depreciation, he showed a salvage of $316.00 from coal chute for these plates and I assumed that they were used again in the present chute, but later investigation
2624 shows that I was mistaken in that assumption.

Q. So you gave your examination in chief about one chute and this examination this morning about another chute, and reach the same conclusion?

A. Yes sir but I adhered to the same plates for both chutes.

Q. Now what time do you assign the market price that you have given to, at the time the old chute was built or at the time the new one was built?

A. At the time this charge was made in 1893 when things were at the lowest prices ever known in this country for metal material.

Q. When you made your investigations as to the market price, were they made with reference to the year 1893?

A. Yes sir my inquiries were for the appropriate dates.

Q. I ask if they were not made for the year 1893?

A. They were, as that is the date this charge is made.

Q. But the chute we are inquiring about wasn't built until after 1893 was it?

A. I didn't care anything about the chute; I was inquiring about the market price of the plate at the time.

Q. But you had the new coal shed and new chute in mind at the time you made it?

A. Yes sir I supposed the plate was used the second time in the new chute and was still in existence and in use, but this cut no figure, as the excessive charge for the plate was the subject I was investigating.

Q. Were these plates laid flat?

A. The bottom ones I suppose would be properly laid on an incline.

Q. Would they have to be rolled in any way?

A. That would depend upon the construction of the chute. You could have bent the sides up, or you could have built the chute with wooden sides and plate bottoms as I have built many a chute.
2625 Q. I am not asking what might have been done or what you have done, but what was done in this case—how was this coal chute built?

A. I have never seen the specifications.

Q. And you don't know whether that sheet steel had to be rolled or not?

A. Well if they rolled up the sides it wouldn't amount to much.

Q. I asked you if you knew whether it had to be rolled or not?

A. I do not.

Q. Would it have to be punched?

A. I suppose so; it might or it might not.

Q. Would it have to be rivited?

A. Well it might or it might not. I have built coal chutes both ways, rivited and not rivited.

Q. Does it cost anything to roll, punch and rivet sheet steel?

A. Yes sir, that would be some expense.

Q. Have you any idea how much?

A. Not very great.

Q. I didn't ask you whether it was great or small; I asked you whether you had any idea what it would be?

A. That is a very elastic question?

Q. Well it seems to me that the answer is more elastic than the question?

A. But it could not be very great, as it is a very simple undertaking, as any rude mechanic or common laborer almost could do such work.

Q. On pages 38 and 39 of your deposition what do you allow for plates used in the standpipe at the filter station?

A. My deposition states that I allowed 3 cents per pound erected for the plates in the standpipe at the filter station.

Q. That includes punching, trimming, shearing plates, &c.?

A. Yes sir.

2626 Q. It includes calking and painting?

A. Yes sir it includes the shop work and erection, which manufacturers generally figure at $4.00 per thousand for shop work and $5.00 for erection.

Q. Per thousand what?

A. Pounds.

Q. It includes painting too does it?

A. No, I added the painting.

Q. Where in your deposition?

A. Well my deposition don't seem to mention the painting, but my details seem to include painting, and I reach $20.00 less than shown by my deposition.

Q. What do you allow in your details for painting?

A. $100.00 which is the estimate of standpipe manufacturers as cost of painting a standpipe of that size.

Q. What did you allow for rivets?

A. I allowed 4 cents a pound, for 10250 rivets.

Q. How much do they weigh?

A. I allowed 5000 pounds.

Q. 5000 pounds?

A. Yes sir, but I don't think they would weigh that much.

Q. Have you got a statement of items there?

A. Yes sir, two of them.

Q. Your deposition shows for plates at 3 cents, $6300.00, rivets ——, so far as the aggregate is concerned, stairs and balcony $160.00, excavation $16.00, concrete $270.00, common brick $112.00, vitrified brick 1700 brick at $16.00 per thousand $27.20, cement grout $50.00, quarter bend $50.00. Now how much do those items aggregate?

A. Those items aggregate $6985.00, but my deposition shows the total was $7128.00; my details here show $7108.00.

Q. Then there is a mistake somewhere, isn't there?

A. Yes sir there is something omitted from the deposition as the amounts named do not reach the aggregate given.

Q. Well if those items stated amount to $6985.20 and you add $100.00 for painting, that is $7085.20 isn't it?

2627 A. I will give you my details.

Q. And then if you add $200.00 for rivets, it would make $7285.20 wouldn't it?

A. Yes sir, and if you add $500.00 for looking at it, it would make $7785.20, but I didn't add those things.

Q. I asked you if they were added if it wouldn't secure that amount. If you wish to make another answer like that I will let you give it?

A. I prefer to give a detail of those items.

Q. Well I am going to give you a chance to give the details now. You can give the details whenever you get ready?

A. The details used were:

205,000 lbs. of plates at 3 cts. erected	$6150.00
10250 rivets at 4 cts. a lb	200.00
Ladder	30.00
Flange and manhole	25.00
Painting	100.00
Anchorage	50.00
One 16 inch quarter bend, 625 lbs. at 4c	25.00
Foundation 11200 brick at $10.00	112.00
1700 brick at $16.00	30.00
Cement grout 6.32 yds	50.00
Excavation 80 yds. earth at 20c	16.00
90 yds. concrete at $3.00	270.00
Incidentals	70.00
	$7128.00

or an overcharge of $4026.91.

Q. Now how did it happen you gave a different set of figures in your examination in chief from those you have now given?

A. My examination in chief does not appear to set out the figures but only some of them.

Q. You reached a different result in any event, didn't you?

A. No sir I reached the same result, $7128.00.

2628 Q. Haven't you just found that the aggregate you put in in your examination in chief was $6985.20?

A. No sir the aggregate of the items enumerated in my answer in examination in chief is $6985.20, but this aggregate is assumed by the assumption that plates were $6300.

Q. Your testimony states in chief that the plates were $6300.00?

A. I am unable to read it that way. It says they are 3 cents per pound.

Q. Don't you say on pages 39 and 40 of your deposition that

"Mr. Wheeler only gives the weight of one standpipe at 210,000 pounds and I found this about right. I made my calculation at about two hundred and nine thousand and some hundred pounds, and I accepted his weight as correct." Doesn't that appear in the deposition?

A. Yes sir but this weight would include the rivets and the balcony.

Q. How do you establish that fact?

A. I have figured it over, and also had it figured by other parties.

Q. That still wouldn't make your figures as now given agree with your original figures, would it?

A. My totals as now given agree with my original estimate. There are some additional items included and some others omitted or modified, but the result, $7128.00 is the same in both instances.

Q. Well how do you account for little discrepancies like this, that in your last statement you figure the quarter bend at $25.00 and in the first statement you figured it at $50.00?

A. In the first statement I accepted the price as charged at $50.00, and in the last statement I ascertained the weight of the quarter bend, and figured it at a full price per pound and found it would only amount to $25.00.

2629 Q. Whose price did you accept at $50.00?

A. The price in Mr. Wheeler's estimate in the first instance, I believe I used $50.00 where he had charged $60.00.

Q. That is what I was going to ask about. So if you used a price of $50.00 where he says $60.00, you didn't use anybody's price did you?

A. No sir I modified it $10.00 and then found on investigation that it was still too high.

Q. You state the weight of the Lonsdale standpipe to be 105,000 pounds. What is the size and thickness of the sheets making up these weights?

A. The bottom and bottom ring ⅝ inch, the second, third and fourth rings ½ inch, the fifth ring 9/16 of an inch, the sixth ring 7/16 of an inch, the seventh and eight- rings ⅜ of an inch, the ninth, tenth and eleventh rings 5/16 of an inch, the twelfth and thirteenth rings ¼ of an inch and the fourteenth ring 3/16 of an inch, which figured accurately appears to produce a weight of 101,196 pounds and would require 6400 rivets.

Q. Where did you get your information as to the thickness of those sheets?

A. I got part of it from a sketch in the office of the Water Company, and for the missing rings for which I had no thickness, I adopted the thickness of the sheet below—the omitted thickness in each instance.

Q. I wish you would produce or identify the sketch from which you say you got the thickness or a part of them?

A. Well I saw it in a memorandum book in the office of the Knoxville Water Company which is not now in my possession.

Q. Whose memorandum book was it?

A. I don't know whether it was Mr. Kimball's or his assistant's.

Q. Can you identify it so that we can find it?

2630 A. If I could see the sketch and compare it I think I could.

Q. Was it a private memorandum book?

A. I don't know.

Q. Was it a part of the books you were authorized to examine?

A. I don't know that either.

Q. Who furnished it to you?

A. I believe it was Mr. Donaldson showed it to me.

Q. What sized book was it?

A. A small book.

Q. It was not one of the books of the Water Company, was it?

A. I suppose it was.

Q. Don't you know it was not?

A. No sir I do not, as it has information in it that should belong to the Water Company, and I should assume that it properly belonged to the Water Company.

Q. What was your information as to how the estimate of the thickness of the different plates in this Lonsdale pipe that appear on the book you refer to had been made?

A. I understood that they had gone up on the side of the standpipe and measured the thickness of the plates which protruded and ascertained the thickness in that way, and that the plates with exposures on the inside had not been taken.

Q. You don't undertake to say that this sketch shown in this book is accurate do you?

A. No not down to the hundredth or thousandth part of an inch I shouldn't say. I don't apprehend that those measurements were made by the use of a gauge, but it is fair to assume that they are approximately correct.

Q. I ask you, next to specify the quantities making up your estimate of $350.00 of excavation and foundation at the Lonsdale standpipe? It may shorten this matter Mr. Nixon if you got the information from the same book in which you found the sketch of the thickness of the plates to state it?

2631 A. No sir I do not recall that that book gave any information about the foundation. I think in that first instance I just made a lumping estimate of $350.00 for foundations, which I think is ample.

Q. On page 22 you reduce the water company $1065.40 on a general item of earth excavation without giving details. State the items in William Wheeler's deposition that you reduce in this estimate?

A. Mr. William Wheeler has charged on pages 23, 24

for Engine Pits 560 yards at 30 cents	$168.00
Page 46, New Engine House, 1369 yds. at 30c	410.70
" 47, for 24 inch intake 78 yds. at 50c	39.00
" 61, for Boiler house, 100 yds. at 30c	30.00
" 61, stairway (no items)	125.00
" 78, for scales, 50 yds. at 30c	15.00
" 90, for Boiler house 190 yds. at 30c	57.00

Page 94, Intake Tower, 800 yds. at 50c.....	400.00
" 94, Stairway, 3500 yds. at 20c.....	700.00
At Filter station page 44, for Filter house, 1136 yds. at 30c.....	340.80
Page 68, grading 2000 yds. at 20c.....	400.00
" 833, extension to settling basin, 260 yds. at 30c...	78.00
making a total of 10043 yards.....	$2763.50

I have allowed	878 yds.	at	30c.....	263.40
	3665 yds.	at	18c.....	659.70
	3500 "	"	15c	525.00
	2000 "	"	12½c	250.00
making a total of	10043 yds.		.....	$1698.10

an overcharge as stated of $1065.40.

Q. That is to say you have reduced the items charged at 50 cents to 30 cents, you have reduced those charged at 30 cents to 18
2632 cents and one 20 cents item you have reduced to 15 cents and the other 20 cents item to 12½ cents, is that right?

A. That is substantially correct.

Q. Now why did you make the difference of reduction between the two 20 cents items?

A. Because the 3500 yard item charge was at the river station and indicated that they might have encountered a small quantity of rock, and the other item of 2000 yards at the filter station being better dirt, I considered 12½ cents would be a fair price.

Q. Both items were at the filter station, wer-n't they?

A. No sir, the 3500 yard item appears to be at the river station and the 2000 yard item at the filter station.

Q. You don't know the nature of the soil in either place do you?

A. No sir no more than I can see now.

Q. Are these your own estimates or some one else?

A. They are a combination of the estimates of Messrs. Getaz and Munding's prices, and prices that were paid contractors for similar work at other places, and my own experience in the cost of dirt work, and also the cost that I found had been paid for a part of this work.

Q. As a matter of fact do you know precisely where the places are that these excavations were made?

A. Not definitely; I know the lots or ground on which this grading is said to have been done and this excavation made.

Q. Then without knowing where the excavations are precisely you make a difference in your allowance as to them respectively, do you?

A. The plans show where this excavation occurred, and the dimensions, except as to the grading.

Q. The plans don't tell anything about the nature of the soil, do they?

A. Some of them have rock line indicated, and solid line, &c.

2633 Q. But the particular plans that you relied on in making these estimates do not show the nature of the soil?

A. No, in making these estimates I did not pay much attention to the plans. Messrs. Getaz and Munding had examined them and passed on this excavation and placed valuation or proper costs in accordance with their experience and familiarity with the conditions that would be encountered, and which they stated they were acquainted with as applicable to this work.

Q. As you cannot locate the places where these excavations were made precisely and don't know whether there was rock, solid or loose in the one or in the other, isn't your assignment of 18 cents to the one and 12½ cents to the other as the price of excavation either purely an arbitrary assumption on your part or a guess?

A. It is neither. If rock of any consequence had been encountered the charge would have been for rock excavation and not for earth, and as to seeing the actual earth moved or the particular spot of ground where the work was done, I don't regard as essential for placing a valuation or cost upon such work, as earth excavation is similar throughout this section, and the cost applicable to one place is practically good for another, but in these instances, practical and experienced men having examined the work and the character of the earth and material encountered, and information being obtainable as to its cost, I am able to place a fair and intelligent valuation upon the same.

Q. You go then upon the depositions of Messrs. Getaz and Munding upon this point?

A. Not entirely as I have made a lower price in some instances than they have.

Q. Well now leaving out of consideration the depositions of Getaz and Munding and tell me what you did get on the outside of them?

2634 A. The estimated cost of similar work at other places being 14 cents, 15 cents, 18 cents and 20 cents for earth excavation, for storage and settling basins and other excavation, and the prices that were paid by the Water Company for some of this work, and other sources of information and collation of facts.

Q. Did you make this estimate before or after Getaz and Munding had testified in this case?

A. Afterwards I think.

Q. Why did you make the reduction of $53.50 in macadam walks?

A. Because I found one of these charges on page "63" of William Wheeler's deposition of 65 yards at 20 cents for placing, $13.00, and the other on page "68," 80 yards of walks at $1.15, $92.00, and on page 94, 20 yards at $1.10, $22.00, being an aggregate charge of $127.00, and having found that the cost of rock or macadam was 66⅔ cents, and 65 cents and 75 cents, I reduced this charge to 67 cents for the 100 yards laid $67.00, and 10 cents for spreading the

65 yards, making an allowance of $73.50, and produced an overcharge of $53.50 as stated.

Q. What did it cost to haul that macadam to the grounds?

A. I have no idea.

Q. The Company is entitled to have that credited to it, isn't it?

A. The vouchers show delivered in some instances.

Q. Do you undertake to say that the 67 cents for macadam shows that it was delivered at that price?

A. I didn't quote a 67 cents price; that was my allowance. These vouchers say that the 75 cents charge is delivered. They don't state whether the 66⅔ or the 65 cents charges are delivered or not. There is also a voucher for macadam at 38 cents a yard, which I assume wasn't delivered, but I have ascertained from men who buy and handle macadam that it was delivered at that time at from
2635 50 to 60 cents a yard throughout the city but I allowed 67 cents in this instance.

Q. Now you say there is a voucher that shows one delivery at 38 cents a yard?

A. Yes sir.

Q. What is the number of that voucher?

A. No. 1652.

Q. What are the vouchers that you refer to showing that macadam was delivered at 75 cents?

A. No. 589.

Q. And what vouchers do you refer to in regard to the 65 cents price?

A. No. 1651, Evans Marble Company.

Q. I hand you voucher No. 1651 which shows 63 yards macadam at 65 cents. See if you see any indication on there that the price of hauling was included?

A. It says "hauled in August 1901."

Q. But there is no price set opposite the word "hauled" is there?

A. No sir but a fair construction to be placed on a voucher of that sort would be that it was delivered as it states, "63 yards of macadam at 45 cents hauled in August 1901."

Q. Don't you know that the Evans Marble Mill don't haul things of that kind?

A. I don't know anything about it.

Q. Did you ascertain anything about it?

A. Except to ascertain that marble spalls had been delivered from 50 to 60 cents throughout the town some 6 or 7 years ago or during the 90's.

Q. Now look at voucher No. 1652 and say if it does not appear on there that 28 yards of sand was bought from Oliver King at 75 cents a yard, making an aggregate price of $21.00, and that below it appears that there were 78 tickets at 38 cents, and immediately below that 78 yards of macadam hauled at 38 cents, the hauling being entirely different from the price assigned per yard, and that the hauling of the macadam cost 38 cents and not the macadam itself?

A. This bill is for 28 yards of sand and for 78 tickets at 38 cents

and Mr. Kimball appears to have noted on the bill "78 yards
2636 of macadam hauled at 38 cents." The fair construction would be that that was for the macadam hauled, but if it is for the hauling of the macadam, a different language should have been used to make the meaning clear, but no doubt the matter can be explained. I didn't assume that that macadam was delivered at that price.

Q. What do you say now as to what that 38 cents should be attributed to just from the face of this paper and from what you know of the prices of macadam?

A. Well it could be construed either way. If Mr. Kimball says it was for the hauling I would accept that as the proper translation of the voucher. I could, without explanation, as fairly construe it as being the price of the macadam hauled, though it would be rather a low price.

Q. Don't you know you wouldn't have allowed 67 cents if you had found any reason to believe that it had been sold in this quantity at 38 cents?

A. No I have previously stated that I assumed that that 38 cents was not the delivered price.

Q. For what reason do you make the reduction of $90.00 as to sodding and grass?

A. Well I find charged on pages 68, 71, 94 and 99 sodding and grass seed to the amount of $210.00, the sodding being charged at 10 cents per yard and the grass seed in lump charges without items or quantities, and Messrs. Getaz and Munding going over these items testified that they had never known over 7 cents a yard paid in Knoxville for sodding at that time, and I found voucher No. 2293 showing a payment to John Cox for sodding around Reservoir at 6 cents a yard and accordingly reduced the price to 6 cents a yard or $105.00, and the charge for grass seed is excessive in accordance with the estimate of Getaz and Munding, allowing $120.00 and reporting as an overcharge $90.00.

Q. Did you ever see the place that has been sodded and can
2637 you identify it now and tell me exactly where it is?

A. I might if I were at the Pump Station and Reservoir, although there is not very much of the sodding there now as it seems to have died out; then, I don't consider that the location is very material as to the price of sodding anyway, as it was in the city.

Q. You don't know the places precisely, and you don't know anything about the prices yourself, do you?

A. No sir nothing except the general prices for sodding in cities. It is done in Nashville for 5 cents where blue grass is plentiful.

Q. Now I wish to ask you about one more item. Why do you make the reduction of $230.00 in enameled brick?

A. On page 89 there is charged for 11500 enameled brick at $75.00 a thousand, $862.50 and $36.00 a thousand for hauling and laying these brick, $414.00. Messrs. Getaz and Munding examined this work and reported that the hauling and laying of these brick could not have cost over $17.00 a thousand and that there was an overcharge of $19.00 a thousand. After seeing the character of the

work I estimated that they ought not to cost over $16.00 a thousand for hauling and laying, and reported an overcharge of $20.00 a thousand, which would not have required a brick mason to have laid over 300 or 400 brick a day to have reached the cost I allowed.

Q. What would you allow a brick mason per day for laying brick of that kind?

A. I should say they would get $3.00 a day for them, maybe $3.50, as that depends upon the place and conditions, and how much union there is enforced, and other things.

Q. Well $3.50 for a mason would make $10.50 a thousand for laying the brick wouldn't it?

A. It might.

Q. Well it is a mere matter of mathematics; I would like
2638 for you to say whether it would or not?

A. I should think the brick ought to be easily laid for $10.50.

Q. I asked you if $3.50 for a mason on the basis you are going on wouldn't make $10.50 per thousand for laying the bricks; that is to say that three times 3½ is $10.50?

A. Yes sir that calculation is correct.

Q. Then how much would that leave for the cost of the brick if no other items are added in?

A. The brick are already charged at $75.00 a thousand and the only question involved is now the hauling and laying.

Q. How much would you allow the helper?

A. $1.00 a day.

Q. With the brick down 30 feet deep, could one helper supply the mason?

A. Well that is owing to whether you worked with one mason or not. It would be more economical to have had more than one mason.

Q. Well if there was only one mason that would be $3.00 a thousand for the helper, wouldn't it?

A. No.

Q. How much would it make?

A. It would be 300 into 100, would be 30 cents wouldn't it?

Q. I don't understand that your mason is laying 3000 brick a day?

A. No that is true I stated 300 or 400 brick per day.

Q. Then it would cost $1.00 a day for a helper to lay 300 or 400 bricks wouldn't it?

A. Yes sir.

Q. And to lay a thousand brick would cost in the neighborhood of $3.00?

A. Yes sir say $2.50, or possibly $3.00.

Q. Well how much would you allow for your Portland cement per thousand?

A. These brick usually are laid very close and a comparatively small amount of cement is used, as the joints are very thin, but as a liberal estimate you could say $2.50 for the cement.

2639 Q. That is about one barrel of Portland cement for a thousand of the brick?

A. One barrel at $2.50 a barrel; it would be over a barrel if it was $2.25 or a less price.

Q. Well what is the price of it, $2.50 or $2.25?

A. Oh it is from $2.25 to $2.50 I presume.

Q. Well now how much sand would you allow?

A. Oh not much, very little.

Q. Well that don't answer my question?

A. They generally figure on from 4/10 to ½ a yard of sand to the thousand brick, but in this instance I should think they could make rich mortar and not use a half a yard of sand, but put it a half a yard—say 40 cents.

Q. Now there is a pit there 30 feet deep which has to be staged?

A. Well put that down at 10 cents. It is a very easy matter to stage a pit of that sort where you are surrounded on every side and braced from every direction.

Q. Now there are 11500 of these brick, isn't there?

A. That is the amount charged.

Q. At your figures then it would cost $1.10 to stage the whole pit?

A. Well that is enough to stage that pit; a half a dozzen poles and five or six planks is all that is necessary, and you hav'n't reached my cost now after allowing drayage.

Q. What are you going to allow for drayage?

A. I should say from 50 to 75 cents a thousand, the company having a contract for drayage at that time at 40 cents a ton.

Q. Don't Getaz and Munding say it was worth $1.00 a thousand to haul them?

A. Well these brick are a very fancy material, such as is used for the facing of mantel pieces in the parlors of the rich people, and I suppose that Messrs. Getaz and Munding allowed a liberal

2640 price for the hauling and handling to cover liability of breakage.

Q. Well now all that is very nicely said, but it don't answer my question. Don't they say it is worth $1.00 a thousand to haul those brick?

A. On page 102 where they report on this overcharge, they don't specify but simply state the charge for laying is excessive, and that it did not cost over $17.00 instead of $36.00 as reported.

Q. It is in that cross examination where they are asked about this matter?

A. That I didn't see.

Q. And don't they also say that the brick were worth $90.00 a thousand?

A. I think Mr. Getaz said that he paid that for some of those fancy brick once.

Q. On page 23 you reduce the estimate on bridge to intake tower by $215.24. Where and at what amount is this bridge entered into William Wheeler's deposition?

A. On page 95 Mr. William Wheeler charges for this bridge $300.00.

Q. Please read what he says just at that point about the bridgee?

A. "Bridge and railings to tower, including erection $300.00."

Q. Now if you reduce by $215.24 that leaves the bridge to cost $84.76 don't it?

A. Yes sir I found I was mistaken on that bridge. I mixed up the pipe bridge on Clinch street in that item, the overcharge being $149.50 instead of $215.24 on that item.

Q. When did you find you were mistaken?

A. When I found the voucher for the bridge—for making the bridge $127.50 and erecting $23.00, total $150.50.

Q. Didn't you find that voucher before you gave your direct testimony?

A. No sir I found a voucher in favor of the Wrought Iron
2641 Bridge Company, and I seemed to have gotten mixed up on that item.

Q. Did you allow anything for the railing on that bridge?

A. I don't know; he says "making bridge and erecting."

Q. Did you allow anything for the railing?

A. No sir I only allowed what I found it cost.

Q. What do you find now that it cost?

A. $150.50, this voucher says.

Q. Don't Mr. Wheeler's deposition show his statement includes the railing?

A. Yes sir his charge is "bridge and railings." The railing is not a very expensive item; it is simply two pieces of pipe.

Q. Now I hand you voucher No. 1152 for purchases made from the Valley Forge and Foundry, and see if you don't find on it these items, "railing to Intake Tower, $48.96, posts for lamp holders $6.00, and connecting bridge railring 75 cents?"

A. Yes sir I see there are such items on the bill you present.

Q. Now look to the distribution of the amounts of the voucher on the back and see if it don't show that $55.71 went to the purposes indicated on the face of the voucher?

A. I find $55.71 distributed to "Intake Tower" on the back of the voucher.

Q. Would you now add that amount to the cost of the bridge and railings?

A. I expect it would be proper if it was used for that purpose.

Q. I ask you whether or not upon the evidences I show you you would now add that amount?

A. Yes sir if Mr. Kimball would say it was used for that purpose, I would.

Q. Isn't this Mr. Kimball's handwriting showing it was used for that purpose?

A. It shows he has charged it to Intake Tower. I will
2642 say however that a calculation of the weight of this bridge, including these railings, does not aggregate as much cost as these charges. The bridge shows from the plans that it weighs 29027 pounds, and small bridges were furnished at that time by

manufacturers at from 4 to 4¼ cents erected per pound, which would amount to $135.60.

Q. At 4 cents a pound?

A. At 4¼ cents.

Q. Try it at 4 cents and see what it would amount to?

A. At 4 cents it appears to amount to $116.10 and at 4¼ cents $123.36.

Q. How do you get that; how many decimals do you point off in your result when you multiply?

A. That is right, it should be 2902 pounds I reckon.

Q. Well I thought there must be some mistake. If it weighed 29027 pounds it would cost $1160 odd dollars, wouldn't it?

A. Yes sir, but it was $116.10.

Q. Now you state on page 41 of your deposition that such portions of the plant as had become extinct according to William Wheeler's deposition amounted to $95987.04 after salvage was deducted, and that $106314.27 without salvage. You further state that this salvage went back into the plant, or is still in the plant. You then state that to ascertain what remained in the plant the gross, and not the net amount should be deducted. Now will you explain upon what you base your reasoning and conclusion that this salvage is still in the plant and therefore its value should be deducted from the value of the plant?

A. This salvage appears to consist of steam pipes, and fittings in connection with the boilers, and $316.00 worth of plates from the coal chute, $1095.00 worth of pipes and valves and connections pertaining to the Davidson Pumps, some $4000.00 worth of pipe, valves and hydrants that were taken up and some $3600.00 or $3700.00 salvage from the Lonsdale plant which was made
2643 use of. This salvage represents such property as would go back into use in the plant, or into supply account for use when desired, and is therefore still in the plant, as I understand it.

Q. Well if it is still in the plant, why did you deduct the amount of it from the plant?

A. Because it has once been charged in the estimate of $711,392.57, the total estimated value of the plant made up by Mr. Wheeler.

Q. This item amounts to something like $10,000.00 doesn't it?

A. $10,327.23 I made it.

Q. Now when these several items were taken out of the plant they were charged off, wer-n't they?

A. They were, except the salvage.

Q. Wasn't the whole item, salvage and everything else charged off?

A. I don't so understand it; only the culminated depreciation was charged off and the salvage deducted.

Q. Don't you know that when the items were taken out of the plant, that the whole amount was charged off the books, and that after that, when the salvage went back into the plant, it was again credited?

A. No sir, I don't translate this statement that way, as it fur-

nishes a gross depreciation and amount of salvage and a net amount, to wit $97,987.04 as the net loss or amount charged off.

Q. Do you get that understanding from the books, or Mr. Wheeler's deposition?

A. I got it from Mr. Wheeler's deposition and his tables and arguments.

Q. Suppose the $10,000.00 was taken out of the plant and charged off and then was put back and added again, would you still take it away from the plant?

A. It was not handled that way in this transaction.

2644 Q. I am asking you a hypothetical question as an expert bookkeeper?

A. That would depend upon what treatment you were making of the transaction and what you were attempting to ascertain.

Q. I am attempting to ascertain whether or not the $10,000.00 that was taken out of the plant and charged off, and put back into the plant and credited again would be in the plant or out of the plant after it was put back?

A. The amount could be handled around in this way so as to reach the effect desired.

Q. Is that the only answer you are willing to give me to that question?

A. It seems to me a sufficient answer, but if you will indicate more definitely and clearly what is desired, I will endeavor to answer more fully.

Q. You make a reduction of $2,000.00 for land belonging to the company not used for water works purposes. This is the former Lonsdale pumping station, isn't it?

A. I so understand. It is abandoned property of the Lonsdale plant at least.

Q. Why not include it in the cost of the plant?

A. Because it is abandoned and gone out and not used for water works purposes, and properly added to depreciation.

Q. Was it abandoned on the 31st of March 1901?

A. My recollection is that Mr. Wheeler states that it was abandoned about May 1900.

Q. If this inquiry related to March 1900 instead of March 1901 would you treat this land as abandoned and entitled to no place in this cost estimate?

A. Yes sir I should consider that it should go into depreciation if it is abandoned.

2645 Q. Supposing the company was using it March 31, 1900, would you still treat it as abandoned at that date?

A. I would treat it abandoned as of March 31st, 1901.

Q. My question however related to March 1900?

A. Of course I should not treat it as abandoned until it was abandoned; if it was being used and essential to the water company of course it would not be included or covered by the depreciation.

Q. Now assuming that it was abandoned in May 1900 as you think and that it had been bought in good faith in 1892 or 1893 for water works purposes, a fair price paid for it and that a pumping station had been erected on a portion of it, and that this together

with other water works appurtenances had been operated continuously to within say 10 months of the date of this inquiry or of March 31, 1901 and then was abandoned, so far as the pumping station was concerned, and on account of more economical ways and methods of operating, and that it still remained a portion of the company's assets, why should not the company, having acted in entirely good faith in the purchase of this property be entitled to a fair return upon its value as much so as upon any other part of its plant?

A. I should say that your question raises a subject for argument as well as law.

Q. Well as it is not within your province to argue this case, I will ask you to answer the question without argument.

Mr. PICKLE: I think that it raises a question of law.

COMMISSIONER: I don't see how he can answer it any other way except by argument as you have asked the question.

A. I only stated that this would be a question of argument or law. I will stop at that, although I can make a further speech if necessary. It was probably bought to be thrown away or abandoned.

2646 Q. Why do you say it was bought to be thrown away or abandoned?

A. Because from the evidence it appears that this company was bought out to dispose of its competition and that it was understood that a greater part of the property would be abandoned as a water supply for Knoxville, as was done in a very short time after it was taken over.

Q. Now where does it appear in this testimony that this company was bought out to avoid competition—who swears it?

A. I don't know that anyone has sworn to this fact, but the proceedings conclusively demonstrate that this was the case.

Q. You are swearing then from your own inference?

A. Yes sir to some extent, and I think it is a sound inference as Mr. Wheeler states on page 366 in answer to a question "that we understood and expected that a considerable portion of it would be abandoned." On page 424 he states "that this property was abandoned upon the consolidation of the company, or soon thereafter."

Q. Mr. Wheeler adds after the sentence you read on page 366 "we also, if I may properly add, understood and expected of course that no abandonment would be made which did not contribute to a greater economy in the operation of the consolidated plant from one source than would attend its operation from both sources, if none of it had been abandoned; in other words the whole transaction and consolidation involved economies which diminished the burden to be laid upon the rates." Isn't that also in his deposition?

A. Yes sir it is.

Q. If the company has a rental for the use of a portion of this $2000.00 of land which rental is credited on the books of the company to expenses, and thus serves by so much to decrease

2647 operating expense, would you still insist that it had no place in the fair construction cost of the plant?

A. I hardly think that scattered pieces of property out in the country could be considered a part of the plant operated for water works purposes, although some small revenue might be secured from the same.

Q. You were asked on page 42 of your deposition if anything is included in an amount there indicated for the mile and a half of 4 inch and 6 inch pipe laid by the Lonsdale-Beaumont water company in the Beaumont Addition. I would ask you to specify any pipe answering the above description that was not in use March 31, 1901, and state its location, length and sizes?

A. I stated that this pipe didn't appear to be included in the $106,314.27 charged off to depreciation in my answer to that question, and I was unable to find that it is.

Q. Well why should it be included in depreciation if it had not gone out of the plant?

A. I know very little about this pipe except what Dr. Coile testifies about, and wouldn't be able to locate it on the pipe book I don't expect.

Q. You don't know anything about whether it was there March 31, 1901, or is there now do you?

A. I know nothing except what is detailed by Dr. Coile in his testimony in this case.

Q. You were asked again on page 42 of your deposition if there is anything in the amount of depreciation for duplication of pipe or excessive sizes of pipe. State any places where there were on the date of this inquiry any duplication of pipes not necessary for purposes of proper and adequate supply?

A. I am not very well posted on this subject and hav'n't made an investigation of the location of pipe to advise myself thor-
2648 oughly on this subject. The only duplication I have run across is on Clinch street, where it appears to carry two or three water pipes—two all the way from Pritchard street, and in some places there are three pipes clear out to sixth street, but whether this is necessary or not I am not able to say, my understanding being that this condition arose partly with the consolidation of the Lonsdale-Beaumont water company and the connecting up of the two supplies where perhaps both companies had pipes along-side when operating independently.

Q. On page 43 of your deposition you refer to a Manning Boiler and say that on pages 44 and 55 of William Wheeler's deposition there is a Manning Boiler about 40 horse power charged, including foundations, settings and connections at $1140.00, set in 1894. You are mistaken about Mr. Wheeler's saying that it was a 40 horse power boiler, ar-n't you?

A. Yes sir that is a mistake for he didn't state that and the boiler I don't think is of sufficient dimensions to furnish that capacity.

Q. Without the 20% added what is the amount of this item on page 44 of William Wheeler's deposition?

A. $840.00.

Q. Please read the items making up this charge?

A. One Manning Upright Boiler 44 inches diameter with 88

tubes, 2½ inches diameter, about 13 feet long, f. o. b. Knoxville, $720.00; hauling, foundation, set and complete $80.00; uptake and damper $40.00, total $840.00.

Q. Turn to page 55 and give the amount without the 20% added?

A. On page 55 "Manning Upright Boiler and connections; steam pipe and connections $100.00; feed pump and hot well connections $200.00, total $300.00.

Q. Are there any other items entering into the cost of this boiler and making your aggregate of $1140.00?

2649 A. No sir I appear to have none. These items amount to $1140.00.

Q. Now isn't it a fact that included in your statement of the cost of this boiler and to make up this aggregate of $1140.00 you have included $200.00 for feed pump and hot well &c. as well as $100.00 for steam pipes, which deducted would leave the cost of boiler foundations, uptake and damper, &c. at only $840.00?

A. That is so.

Q. You further say that from your examination of the plant, a second boiler which was put in was intended as a substitute for the first and has taken the place of the first, and the first seems to be more as a reserve, has no value except as a reserve. Where did you obtain your information or from what do you draw your conclusion that this boiler is not used?

A. From the fact that I have never seen it in use when around the plant and was unable to see any use for it except as a reserve, and from my experience with Manning boilers I assumed that it was discarded or substituted on account of the expense of its operation and of its maintenance, as it is a boiler that requires constant attention by a boiler maker.

Q. That is your conclusion?

A. That is my experience with Manning boilers.

Q. I suppose you would not insist in the face of the testimony of water works people that it has been abandoned when they say it has not, would you?

A. No, only from the fact that I see it is not being used and have never found it in use at any time I have been at the filter station and I think it is good management not to use it except as a reserve, as both boilers are not required at the same time.

Q. Well why is the company not entitled to full credit for it if it is used as a reserve only?

2650 A. Well I should think they were entitled to credit for it as to its value for that purpose. In our replacement cost of the plant however, we have adopted two horizontal boilers in a battery.

Q. Where did you ever install a Manning boiler four times the size of this one at $200.00?

A. At Nashville and Brushy Mountain both.

Q. What is the size of this one?

A. I have heretofore given the size; my memorandum here shows 2½ feet in diameter by 13 feet long. The boilers I installed were 200 to 250 horse power each.

Q. What were the dimensions of these you installed?
A. As I recall they were 8 feet in diameter and 25 to 30 feet high.
Q. What did the boilers cost you?
A. $200.00 each.
Q. Where did you buy them?
A. At Nashville.
Q. From whom did you buy them?
A. From the Electric Light and Power Company who had discarded them.
Q. They were second-hand boilers then?
A. Yes sir.
Q. Do you think it fair to compare second-hand boilers with out new machinery purchases here?
A. Yes sir, when the second-hand boilers were put in good condition and were so much larger or greater in capacity than this little boiler with which the comparison is made, I do. The Manning boiler is not an economical boiler on fuel.
Q. You state on page 44 of your deposition that a pipe bridge estimated by William Wheeler on page 96 of his deposition at $725.00 was invoiced by the Wrought Iron Bridge Company at $465.37, to which allow him say $40.00 for erection would mean an overcharge of $200.00. You also state that you don't know whether the water company put this in or the contractor. I hand you
2651 voucher No. 154 and ask you if it is not the voucher that you refer to?
A. Yes sir this is the voucher to which I referred.
Q. Isn't it a fact that the price named thereon is $478.00 and not $465.37?
A. The itemized bill is for $465.39, another bill is for $478.00 from which is deduced a bill of items charged to the bridge company by the water company of $12.61 leaving $465.39 and the draft paid in settlement of the bill is $465.39.
Q. That $12.61 is for work that had to be done at this end of the line isn't it?
A. Well it could be so assumed; the bill for $12.61 is charged for work and material.
Q. Well that is a proper part of the cost of the bridge isn't it if the company had to spend it?
A. It might be.
Q. Well isn't it?
A. They seem to have made the bridge company pay for it which is assumed to be proper or they wouldn't have done so.
Q. Now I hand you voucher No. 32 and ask you if that does not show $39.41 of work done on that pipe bridge?
A. Yes sir voucher No. 32 covering payroll for week ending April 20th, 1900 has $39.41 of the amount distributed to or charged to pipe bridge.
Q. Now look at voucher No. 43 and see if it does not show $55.68 on pipe bridge?
A. Yes sir voucher No. 32 covering payroll for week ending April has that amount charged to some pipe bridge.

Q. Have you any doubt that it is this bridge?
A. I do not know as that is not explained by the voucher.
Q. Have you allowed for any other pipe bridge anywhere?
A. No sir, I have balanced the other pipe bridges by another matter.
Q. Now I hand you voucher No. 29 and ask you if it does not show $90.00 expended on this and another pipe bridge?
A. Yes sir voucher No. 29 of $90.00 for cutting abutments
2652 for bridge seats on Clinch street over first and second creeks.
Q. Now doesn't voucher No. 129 show $2.00 spent on that bridge?
A. No sir I am unable to find it if it does. This voucher No. 129 is for drayage.
Q. Well look to item hauling pipe to Clinch street, pipe bridge?
A. Yes sir I find an item of drayage of 8050 pounds which at 40 cents per ton, contract rate would be about $2.00. It would be four tons, and accurately it would be $1.62.

The further taking of this deposition was adjourned until Thursday morning October 29, 1903, at 9:00 o'clock a. m.

2653 THURSDAY MORNING, *October* 29, 1903—9:00 a. m.

Continuation of cross-examination of W. M. NIXON.

By J. W. CALDWELL:

Q. Turning to pages 46 and 47 of your deposition, you state that you found the voucher to E. Hodge and Company dated October 10th 1901, for two boilers as described therein, $1240.00. Did this voucher call for boilers delivered at Knoxville or was this the price at Boston?
A. I don't recall whether they were delivered or not; I don't recall whether the voucher showed.
Q. Look at the voucher and see if it shows, Mr. Nixon?
A. Yes sir it says delivered f. o. b. cars Boston.
Q. Then freight would be a proper item to add to this amount, wouldn't it?
A. Yes sir the freight would have to be added to cover the cost delivered at Knoxville.
Q. Did you look to see if there were vouchers covering these freight items?
A. I don't recall that I struck the voucher for the freight.
Q. I hand you vouchers Nos. 1132 and No. 1133 and ask you if they don't show aggregate freight charges $151.36?
A. Yes sir these freight bills call for $151.36 on two car loads boiler material from Boston.
Q. There were some costs connected with unloading and hauling to the Pump House in the case of these boilers, were there not?
A. Oh yes sir the drayage and erection would be necessary, but this is already charged in another item however.
Q. Where else is it charged?

A. It is assumed to be covered in the charge of $900.00 for the settings and foundations.

Q. Who assumed that?

2654 A. I did, and do now as $900.00 is a very liberal charge for that work.

Q. I hand you voucher No. 1157 and see if there is not a charge of $30.00 there for the hauling of those boilers?

A. Yes sir voucher No. 1157 dated March 1st, includes two boilers at $15.00 each, $30.00.

Q. As Mr. Wheeler's item calls for fittings as well as boilers how much will you allow us in addition for such fittings?

A. It would be necessary for you to indicate the fittings referred to as the price of the boilers appears to cover considerable fittings and fixtures. It is usual for boiler men to furnish those fittings and fixtures.

Q. Which voucher shows fittings?

A. I hav'n't examined to see. This voucher No. 1248 doesn't specify any fittings except some brass feed pipe and 4 steel plates. The Boston boiler men don't appear to conform to the regulations of this country.

Q. Now look to voucher No. 1271, the last bill in the lot and see if it don't show for boiler fronts $157.97 for these boilers?

A. Yes sir there is a bill for two boiler fronts purchased from the Hawley Downe Draft Furnace Company for $157.97.

Q. Now please examine voucher No. 1096 and see if it don't show $16.49 for freight on those boiler fronts?

A. Voucher No. 1096 is a freight bill of the Southern Railway Company for, what appears from the items to be boiler fixtures.

Q. Now look to voucher 1157 and see if under date of February 5 there is not a charge of $1.20 for hauling the boiler fronts to the Pump Station?

A. Yes sir this bill for drayage seems to cover expenses to that extent.

Q. See if voucher No. 1261 doesn't show $9.00 for gauge cocks?

2655 A. Yes sir it covers 6 gauge cocks, $9.00.

Q. I hand you vouchers Nos. 1186, 1187, 1188 and 1189 and ask you if they don't aggregate $60.71 for items connected with these boilers?

A. These vouchers cover charges for grate bars from the A. B. Day Foundry company, which might be used in the installation of these boilers or they might be used for repair purposes.

Q. Look at the distribution made upon the back of each one of them and see what it says?

A. They are charged on the back to "New Pumping Machinery" but it is a very unusual proceeding to have paid extra for grate bars and fronts in the purchase of a boiler. It confirms a previous statement of mine that Boston is a bad place to buy boilers.

Q. How many did you ever buy in Boston?

A. I never bought any in Boston and I never expect to from this enlightenment.

Q. Why do you volunteer these statements then when I am asking you about these items?

A. Because I bought some boilers about the same time and all these things were included in the price of $6000.00 each for the boilers, including stacks and breeching.

Q. Now look to voucher 1190 and voucher 1191 and say if they don't make $101.20 entering into this matter of these boilers?

A. Yes sir these vouchers appear to cover buck stays that would be required in the setting of these boilers, and that is another item that is usually covered by boiler manufacturers in their charge for boilers.

Q. Did I ask you whether it was "usually covered" in that way or not?

A. No sir, but it is a fact nevertheless in this country.

2656 Q. Now to cover the item of $1800.00 for these boilers as estimated in William Wheeler's deposition you have shown by the vouchers that the boilers cost $1240.00, freight $151.36, hauling $30.00, sundry fittings $346.57, is that correct?

A. I presume it would reach that amount.

Q. See if those items don't aggregate $1767.93?

A. I assume that they would without adding them.

Q. I don't wish you to assume it; I wish you to add them up and see if they don't aggregate that amount?

A. They do. I thought that was a good purchase before, but now it don't seem to be if all these extra additions are to come in.

Q. Now isn't it a fact that there are other small items such as labor and handling small supplies purchased locally entering into the cost of these boilers which are not specifically shown here, and don't you think that the price actually paid, towit: $1767.93 is fairly close to Mr. William Wheeler's estimate of $1800.00?

A. I don't know about these small bills or purchases to which you refer, or whether it is proper that they should be added or that they are included in other charges in connection with these boilers, but the $1767.93 aggregate of bills shown is fairly close to the estimate of $1800.00 by Mr. Wheeler for this machinery.

Q. Well is that all?

A. Well that answers the question and protects me, I think.

Q. Going back to the boilers themselves, you have been asked if Boston was a good market for boilers as regards prices of material, &c. Assuming that the Water Company asked for bids on these boilers from Chattanooga and Knoxville parties as well as E. Hodge and company in Boston, and that freight taken into consideration the bid of E. Hodge and company was the lowest, all parties bidding on the same specifications; what would you say under that assumption as to the wisdom of the water company in contracting

2657 with the Boston firm?

A. In a former answer I stated that I did not regard Boston as the best market for boiler supplies for this section, and from the disclosure of the additional charges and extras added to these boilers, clinches my conclusion, demonstrating that Boston is either not a good market, or that the purchaser was very lax in protecting himself against there extra and unusual charges.

Mr. CALDWELL: I ask the court to strike this out as it is in no sense responsive to any part of my question.

COMMISSIONER: The question Mr. Nixon is an assumption that you don't have to admit to be true at all; it is a very simple assumption that you would have to answer "yes" it seems to me as he says "assuming" that they took bids at Chattanooga, Knoxville and Boston, and the lowest bid being the Boston bid, was it not wise in the water company to accept the Boston bid?

A. No, the assumption is so unusual and impractical that I could not admit it in the face of my experience in the purchase of boilers and boiler material in this country.

Q. I hand you a letter from E. Hodge and Company, dated Boston, Massachusetts, September 8th, 1900 to the Knoxville Water Company and another letter to William Wheeler from E. Hodge and Company dated Boston October 9th, 1900, and ask you to state if they are not a bid from E. Hodge and Company on these two boilers, and what the bid is?

A. The letter of September 8th is a proposition to furnish two boilers of the dimensions of the boilers under discussion for $1454.00 and additional charges for fixtures and fittings amounting to $209.00.

The letter of October 9th, to Mr. William Wheeler purports
2658 to confirm a telephone message of the same date changing the bid from $1454.00 to 1400.00 "or if delivered on cars at Boston a further reduction of $160.00."

Mr. PICKLE: I desire to give notice now to the Water Company to produce the letters written to that Company by the Water Company or by the Wheelers.

Mr. CALDWELL: We will produce the letters, and attention of the court is called to the fact that this and other correspondence were tendered by Mr. William Wheeler on his examination by counsel for the defendant nearly a year ago.

Q. I hand you proposal for furnishing two 66 inch by 18 feet boilers and certain specified fixtures, dated Chattanooga, Tennessee, September 10th, 1900, signed by Walsh and Weidner and ask you if it is not for these same boilers and what the bid there is?

A. Yes sir this is a proposal of the Walsh and Weidner Boiler Works of Chattanooga to furnish two 66 inch by 18 feet boilers in conformity with specifications referred to as annexed, but which do not seem to be here, at $1480.00 at the Pump Station of the Knoxville Water Company at Knoxville, and certain other fixtures at certain specified prices, that indicate that this is a better proposition than the one that was accepted?

Q. Well figure it out and see how you think that is the best proposition, if you think it is?

A. Two 66 inch by 18 feet boilers delivered at Pump Station Knoxville Water Company, Knoxville free of expense for $1480.00. Two 4 inch pop safety valves $35.00, equipment of Reliance safety valves, $50.00, blow-off valves $12.00, arch bars 1¾ cents a pound and buck stays and combined bars, bolts and washers 2 cents a

pound, 2 extra clean-out doors at $3.00 each, one-half arch
2659 fronts 2 cents a pound, bearing bars and grate bars at 1¾ cents a pound.

Q. I want to ask you right there Mr. Nixon if those are not all the items covered by these vouchers that I read you this morning, that the bid is just for the boilers themselves?

A. Well they are for similar fixtures, not identical in all things.

Q. But they are in addition to the price of the boiler, ain't they?

A. Yes sir but I believe a close calculation of these items in comparison with the purchase made would show that the Walsh and Weidner proposition was the cheapest for the entire outfit, but there are other boiler manufacturers in Chattanooga besides Walsh and Weidner.

Q. What is the price made by Walsh and Weidner for the boilers alone at the Pump Station?

A. $1480.00.

Q. What is the price that Hodge and company bid f. o. b. Knoxville?

A. Their bid was $1400.00 at Knoxville for their naked boilers.

Q. Isn't it naked boilers that Walsh and Weidner figured on?

A. Not entirely.

Q. Well what is it there besides naked boilers that they figured on included in their price of $1480.00?

A. It would require an investigation of the specifications referred to to disclose.

Q. Wouldn't it also require an investigation of the specifications of Hodge and company?

A. Hodge and company appear to limit their proposition to the naked boilers.

Q. Don't Walsh and Weidner so limit theirs?

A. No sir, they refer to annexed specifications in their proposition, which are not annexed.

2660 Q. Now the fact remains that the price of Hodge and company is $1400.00 for the boilers to which should be added $30.00 for hauling them from the cars to the Pump Station at Knoxville, making $1430.00 as their bid as opposed to the bid of Walsh and Weidner of $1480.00 for the same boilers delivered at the Pump Station, isn't that a fact?

A. Your statement is a fact as far as it goes, which would indicate that the Boston bid was $50.00 lower, but it appears to me, without a close calculation that this is more than overcome in the difference of the extras and conditions that appear to have been encountered before the water company got through with the job.

Q. I hand you bid of B. B. Dallas dated Knoxville, Tennessee, September 10th, 1900 for furnishing 2–66 inch by 18 feet boilers and certain specified fixtures, and ask you for the price of Mr. Dallas upon the boilers themselves? Please state in answer to the question what the price on the boilers themselves is, and then if as usual you desire to add something, add it after answering the question. I hand you also in that connection a letter from Mr. Dallas to Mr. Kimball dated September 14th, 1900?

A. Mr. Dallas' proposition of September 10th for these boilers

appears to be $809.00 each or $1618.20 for the two. His letter of September 4th says "my bid should have been $762.00 each," which would make $1524.00 for the two delivered, but I would say that I wouldn't attach much importance to Mr. Dallas' bid, as he runs nothing but a hand boiler shop, and you might as well have taken a bid from a blacksmith.

Q. While I don't understand you to concede that the bid of Hodge and company is the lowest of these three, do I understand you still to adhere to the conclusion that the possibility of buying these boilers cheaper in Boston than here or at Chattanooga is so remote that you would not consider it at all?

2661 A. Well, with these disclosures I would have to state that there is not very much overcharge on this item as I had thought originally, but these disclosures also more firmly clinch my conclusion that Boston is a bad place to go for boilers for this country, and that this transaction, with good management should have been opened to more competition from boiler men rather than from the blacksmith boiler maker at Knoxville and only the one boiler shop at Chattanooga.

Q. How many bids do you think we should have asked for?

A. I think good business management would have suggested the receipt of bids from all the boiler manufacturers in this vicinity.

Q. When you made your replacement account did you ask Mr. Dallas for any information?

A. Not on boilers.

Q. What did you ask him for, on blacksmithing?

A. I secured some information from him regarding the standpipe.

Q. Why did you ask for information about the standpipe from a blacksmith?

A. Because he appeared to know something about the standpipe which he says he obtained from the men who erected it.

Q. You know that Dallas has built boilers don't you?

A. Oh yes he can build boilers and does build boilers.

Q. And you know that he never built a standpipe, don't you?

A. I don't recall whether he said he had ever built a standpipe or not. He didn't build either of the ones here, and I doubt very much whether he could do so at any reasonable price with his equipments and facilities. He seems to have no pneumatic machinery or hoisting arrangements for handling or building boilers at a reasonable cost.

Q. You say that we ought to have submitted this proposition to all the boiler makers in this neighborhood. Now isn't it a

2662 fact that you stand on record in this case in basing your estimate of prices of pipe on March 31st, 1901 on one single letter from Nashville?

A. I think that bids should have been received from the other boiler makers in Chattanooga, and at least one from Birmingham, Alabama, where a suitable boiler steel is manufactured.

Q. I ask you if you hav-n't deliberately put it down as your testimony in this record that you base your estimates of prices of pipe of

March 31st, 1901 from a letter received from an officer of the Nashville Water Works?

A. I have stated that I regarded the purchase of pipe at Nashville after competitive bids and publication as a better criterion or disclosure of the possibilities in the market at that time than some invoices of pipe to the Knoxville Water Company.

Q. Hav-n't you said in this record that you based your estimate on that letter from Nashville?

A. My recollection is that I stated that this purchase at Nashville, as explained in a previous answer which I have since learned was made on the 16th day of March 1901, was one of the leading facts upon which I based my estimate of the possibilities of purchasing pipe on March 31, 1901.

Q. Are you willing to answer my last question yes or no?

A. Certainly, if yes or no will clearly indicate my meaning without making it obscure by the form of the question.

Q. Referring to the matter of estimate for uptake dampers, &c., you say on page 47 that you found a voucher of B. B. Dallas dated March 5, 1901, for $118.37. Please look at that voucher and see if it is not $187.13 instead of $118.37?

A. I think some mistake was made in that figure as my memorandum shows that the amount is $187.13, which I quoted or intended to quote and the discrepancy no doubt has arisen from a misunderstanding of the figures as our replacement has practically verified the charge of $187.13, as we found that these smoke connections would amount to $194.70 in our replacement estimate.

2663

Q. On page 49 of your deposition you state certain items of the Lonsdale plant that appear in William Wheeler's deposition stating the aggregate as $52120.00. Is that amount with or without salvage?

A. The amount of $52120.00 is the gross amount before deducting the salvage that I refer to in the latter part of the answer.

Q. You are seeking there to get at the correct amount of depreciation as I understand?

A. My answer indicates that I was seeking to get Mr. Wheeler's statement of culminated or complete depreciation by replacement and disuse in May 1900.

Q. Well how do you treat salvage at that point, as being in or out of the plant?

A. I hav-n't made any treatment of it in this instance, simply reporting the facts as disclosed by Mr. Wheeler's statement.

Q. You say that $52120.00 of this plant, that is the L-B plant, had gone out by replacement and disuse according to Mr. Wheeler in May 1900. Further down you say that Mr. Wheeler figures salvage on 3500 feet of cast iron pipe at $2345.00 and machinery at $1350.00. Now if your object is to get at the correct amount of depreciation, the salvage should not enter into it, should it?

A. I should say that in my judgment of this transaction that the depreciation should be credited or reduced by the amount of machinery sold, but if the 3500 feet of cast iron pipe has gone into the

supply account or relaid in the plant, it should not be considered in this depreciation estimate.

Q. That would be true in your judgment even if the pipe used the second time is credited back at its full value?

2664 A. Yes sir if it was charged at its full price in the original estimate, that would be my view.

Q. That is if it were in effect again so to the Water Company?

A. Yes sir but I do not understand that that kind of an assumption would apply in this instance as all this Lonsdale property appears to be included at full price in the total of $711392.00 estimate on the value of the plant.

Q. Testifying to salvage in regard to other parts of the plant you said on page 41 of your deposition opposite the first "Q" from the top of the page "it went back into the plant, or is still in the plant—back into construction or supplies on hand." Now if it is still in the plant where did you deduct it?

A. I made such statement on page 41 and still insist upon the correctness of the same, and as I understand this material was reused and is still in the plant; this being true the amount of the depreciation should not be reduced by this salvage.

Q. I wish you would look at Mr. William Wheeler's deposition page 5 and see if you don't find this on that page referring to these matters; "Depreciation is assumed to have become complete by nonuse and discontinuance March 31st, 1900 (actually May 1900) on the whole of this item, less salvage as follows: 3500 feet more or less, 12 inch C. I. pipe taken up at ($25.00 per ton less 27 cents per foot for taking up) 67 cents, including valves, &c., $2345.00, making net depreciation as of March 31, 1900 $33355.00 as against the gross amount as shown on page 164 of $35700.00." Now how does that show that item of salvage treated?

A. Mr. Wheeler appears to have handled this item in a mathematical calculation where he states its life was 7 years and its annual rate of depreciation was 4½%, and as there is some figuring

2665 here that is too complicated for me, by which he reaches a percentage of 11.64, and some additional accumulation to March 31, 1900 at 6%, $35356.30, which treatment I don't pretend to understand, nor to know what he is endeavoring to attain by these mathematical gymnastics.

Q. So that you really don't understand how Mr. Wheeler does treat this item?

A. No sir he has about 100 pages all Greek to me in this depreciation business. All I have endeavored to ascertain was the total amount of same, and to leave all this figuring to him.

Q. In order that I may be able to form a proper estimate as to the extent to which you understand this figuring, it will be necessary for me to ask you how much you know about Greek?

A. Not a thing, and very little about Latin.

Q. On page 50 of your deposition you treat the "mile and a half" of 4 and 6 inch pipe in the L-B plant said somewhere to have been taken out, as worth about $4000.00. Didn't I understand you to

say yesterday that you knew nothing about this mile and a half of said 4 and 6 inch pipe?

A. Yes sir I so stated—this answer simply related to what would be the probable amount of that quantity of pipe at the figures used in these estimates, and did not contemplate me identifying this pipe.

Q. On page 50 of your deposition you have undertaken to set out from Mr. Wheeler's estimate the total length of cast iron pipe and the price he puts on it with the aggregate amounts. Does or does not this take into account the salvage or replaced pipes?

A. This statement gives the total pipe charged by Mr. Wheeler as going into the plant up to that date and does not refer to pipe taken up, which is shown in another statement.

Q. Without testing all these sizes I will ask you in relation to the 12 inch pipe. Please state the page of William Wheeler's
2666 deposition the quantity in feet and the amount in dollars and cents of the various items going to make up the 34601.2 feet at $41269.70 that your table shows?

A. Taken from Mr. Wheeler's estimates, he shows on page 32 2430 feet of 12 inch pipe weighing 82 pounds to the foot at a price of $1.80 per foot amounting to $4374.00; on page 33 4054.3 feet charged at $1.80, $7297.74; on page 35 1473.6 feet weight 75 pounds to the foot at $1.29 a foot, $1900.94; on page 37 6350.9 feet at $1.29, $1892.66; on page 48 4484.2 feet at $1.10, $4932.62; on page 80, 263 feet at $1.51, $356.75; on page 86 9774.2 feet at $1.29, $12608.72; on page 95, 5771 feet at $1.37, $7906.27, making a total of 34601.2 feet and $41269.70.

Q. Now look to the item on page 37 and see if you have not made a mistake exceeding $6000.00 in amount?

A. No sir, this item on page 37 is 12 inch pipe, 75 pounds to the foot, 6350.9 feet at $1.29, $1892.66.

Q. Well make the calculation and see if you haven't made a mistake of $6300.00?

A. If there is a mistake I didn't make it.

Q. Well calculate it and see if there is not a mistake?

A. If the figures given by Mr. Wheeler are correct as to footage and all things, he has made a mistake in his calculation where he reports this 12 inch pipe at $1892.66. I never went over his calculations or attempted to verify them, but simply accepted them as made, and if there is a mistake, it is his mistake and not mine.

Q. It plainly shows that there are 6350.9 feet worth $1.29 a foot, doesn't it?

A. If there are 6350.9 feet charged at $1.29 it would amount to more than $1892.66, the amount he has here in his statement.

Q. Don't it appear in the item I called your attention to
2667 that there are 6350.9 feet?

A. Ch he has charged 6350.9 feet.

Q. You were going on his figures?

A. Yes sir I used his figures and made up this estimate as being his charge for this pipe.

Q. Now how do you get your pipe prices, by what sort of a process of figuring?

A. On this statement?

Q. Yes sir?

A. I use his prices.

Q. As shown by you on page 52 of your deposition I mean—what I am after now is your unit prices of pipe?

A. The prices used on page 52 are the prices made by Mr. Wheeler.

Q. You are certainly mistaken about that are you not Mr. Nixon?

A. They were made by Mr. Wheeler, that is, the totals were made by him, that is the total footing and total cost in money; to ascertain the footage prices I ran the footage of each size through the amount of money charged for each size and obtained the price per foot in this manner.

Q. Then they were not William Wheeler's unit prices?

A. They are William Wheeler's total prices, but are not his footage prices used in this connection.

Q. Now what is William Wheeler's total price for 12 inch pipe?

A. This table shows the total of 12 inch pipe existing on March 31st, 1901, at 34383.2 feet amounting to $41259.84, and dividing this amount by the number of feet gives a footage price of $1.20 per foot.

Q. Now where does Mr. William Wheeler adopt $41259.84 as his total price?

A. I am not aware that he made this aggregate anywhere in his statement. I obtained the same by collecting his aggregates of this sized pipe.

2668 Q. Now haven't you just proved by calculations that the amount of the 12″ pipe is $6300.00 more than you have allowed to it in your table on page 52 of your deposition?

A. That mistake of Mr. Wheeler's applied to another table and whether it enters into this one or not I haven't endeavored to ascertain.

Q. What other table are you talking about?

A. Of total pipe paid aggregating 300084.7 ft. The table on page 42 aggregates 287149.2 feet which is the cast iron pipe existing as of March 31st, 1901, as certified by Mr. Kimball and his assistant.

Q. Isn't the quantity of 12″ pipe substantially the same in both tables?

A. One is the pipe laid and the other is the pipe remaining, the amount of the reduction being the 12″ pipe taken up.

Q. Well, what is the amount of that reduction in order that we may see that they are substantially the same—I mean the amount of 12″ pipe?

A. The difference between these two aggregates lengths of 12″ pipe appears to be 218 feet.

Q. And that amount out of a total of over 34000 feet?

A. Yes, sir, that amount is deducted from 34601.2 feet which leaves 34383.2 feet.

Q. Now the amount of 12″ pipe shown on page 37 of William Wheeler's deposition is 6350.9 feet, isn't it?

A. Yes, sir, he charges for 6350.9 feet on page 37.
Q. At $1.29 a foot?
A. Yes, sir.
Q. Now how much does that come to?
A. Correctly calculated it would come to $8192.66. He has charged it at $1892.66.
2669 Q. Our copy of the deposition does not show it as charged at $1892.66?
A. Well it is very plainly shown in our copy of the deposition.

Mr. CALDWELL: I desire to ask the stenographer at this point who made the correction on the copy of our deposition changing the $1892.66 to $8192.66?
STENOGRAPHER: I made the change myself on your copy, but omitted to correct General Pickle's copy at that time, his copy now reading $1892.66 when it should read $8192.66.

Q. The result Mr. Nixon of correcting the mistake in transcribing Mr. Wheeler's deposition on page 37, is to make your statement of his total of 12 inch pipe wrong by about $6300.00?
A. The correction of this mistake would add $6300.00 to my statement.
Q. So that the result is to make your total of pipe cost on page 52, to-wit: $233562.16 erroneous?
A. The correction of this mistake would add $6300.00 to my total of pipe on page 52.
Q. And would also make a difference in your unit price of $1.20 on 12 inch pipe?
A. Yes, sir, it would make a change in my footage price on 12 inch pipe.
Q. A further result would be that this mistake would vitiate all the calculations that you have made using this unit price for 12 inch pipe or this total cost of all pipe?
A. No, it would make a change in both tables on this sized pipe, but would not affect the other calculations pertaining to other sizes.
Q. You were asked on page 53 of your deposition whether
2670 these estimates show pipe taken up was disposed of? To what estimates do you refer?
A. The various estimates of pipe where it was shown as being taken up being the salvage accounted.
Q. You also state on page 53 that if it, the pipe taken up, was returned to the plant, it went in at the price of new pipe. Is it not a fact that when it was taken out of the plant it was credited at new pipe prices?
A. No, I have never seen any such credits. All the pipe taken up that I have found has been accounted at very low or depreciated prices and not at full or new pipe prices, and I have never found where any pipe has been laid that showed it was done with old pipe at a reduced price.
Q. Now, please turn to page 38 of William Wheeler's deposition and see if you don't find at the top of that page the statement that

old cast iron pipe is accounted at the price of new pipe at the cost of taking up?

A. Yes, sir, he makes such a statement but the figures he uses do not appear to sustain it.

Q. You mean he don't use your prices?

A. The prices he allows for pipe taken up are so far below the prices charged for new pipe that he doesn't appear to have adhered to the rule which he says he lays down. Many of his prices allowed for old pipe are not more than the prices of junk; in fact, for wrought iron pipe he allows nothing whatever, the effect being that wrought iron pipe now in the plant stands charged at the same cost, though reduced in quantity by from one fourth to one third.

Q. Please see if you don't find on page 36 of William Wheeler's deposition that the items there followed are for the year ending March 31, 1893, including the items on page 37 and 38?

A. Yes, sir, he states that they cover additions made during the 15 months.

2671 Q. Now Mr. Nixon if pipe is worth $25.00 a ton what will a foot of it cost laid, for 12 inch pipe weighing 75 pounds to the foot?

A. $25.00 per ton of 2000 pounds would be a cent and a quarter a pound and therefore 75 pounds multiplied my 1¼ cents would be 93¾ cents.

Q. Now what does Mr. William Wheeler allow on page 38 of his deposition for taking up that same 12 inch pipe?

A. He shows a salvage credit on page 38 of 208 feet of 12 inch pipe at 71 cents a foot, $147.68.

Q. Now how much has he charged for taking it up?

A. In his list of charges for taking up pipe on same page he gives 22 cents per foot on 12 inch pipe.

Q. Now you have shown that this pipe cost 93 cents a foot; Mr. Wheeler charges 22 cents for taking it up. How much does that leave?

A. I have made the calculation of 75 pounds of pipe at $25.00 per ton. giving the result reported in previous answer—deducting the 22 cents charged by Mr. Wheeler for taking up pipe of 12 inch size would leave 71¾ cents.

Q. That is substantially what Mr. Wheeler allows, isn't it?

A. That is withoin ¾ of a cent in this instance of his allowance.

Q. Does not that show then where pipe is charge at $25.00 a ton for this year he has allowed when taken up the price of new pipe less the cost of taking it up?

A. This appears to be so in this instance. On the same page however is over 2000 feet of wrought iron pipe for which he has allowed nothing.

Q. Do we claim anything on the wrought iron pipe in our analysis?

A. Oh yes sir you have the entire charge of wrought iron pipe in your analysis without any allowance for the pipe that has been taken up.

2672 & 2673 Q. Now allowing you to say, or think whatever you please about the wrought iron pipe, hav-n't you said that we did not put down the cast iron pipe and take up the cast iron pipe and count it at the price of new pipe less the price of taking it up?

A. No sir, I hav-n't said anything of the kind. What I said was that the accounts of cast iron pipe taken up are at very low prices, and that when charges are made for laying any given quantity of cast iron pipe, the charge is at approximately full rates, and that no substantial reductions have been disclosed for the use of old or second hand pipe, if the same has been used in relaying.

Q. Do you mean this last statement as your present conclusion or as a restatement of what you have already stated before?

A. I mean it as a repetition and explanation of my former statement.

By consent of counsel, pages "55" to "59" inclusive of W. M. Nixon's deposition in chief, excepting the 9 lines at the bottom of page 59 are stricken out, being the incomplete statement of pipe purchases and the controversy as to the admissibility of the same.

The further taking of this deposition was adjourned until Friday morning, October 30th 1903 at 9 o'clock A. M.

2674 FRIDAY MORNING, *October 30th*, 1903—9:00 a. m.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

Q. Mr. Nixon, what do you mean by "the fair market price" of a commodity of any kind?

A. The price at which it could be bought in substantial quantities and reasonable deliveries for cash, approximately or usual payments.

Q. How would you say that the Water Company ought to go about getting bids on cast iron pipe at any given time?

A. If I were going to buy a large amount of pipe, I would ascertain from the manufacturers, dealers or brokers the best proposition I could receive for the pipe. Pipe-men say there is absolutely no such thing as a market price for pipe, that almost every transaction stands alone; that the conditions governing at the time have as much or more weight and consideration in the price they are willing to accept than what the pipe would cost to produce, such as the competitive character of the business and the conditions at the pipe shop relative to the particular sizes and character of pipe desired, and they frequently figure that they make money when selling a lot of pipe at cost, or even less, than to loose the business.

Q. If you had been in the place of the Knoxville Water Company in March 1901 and wanted to buy a substantial quantity of pipe, how many pipe manufactories would you submit your proposition to, and name as many as three of the ones you would select?

A. I regard as the best plan, to have visited some of the principal pipe shops in this vicinity and ascertained the condition, and after doing so securing the most favorable proposition that was obtainable, and if necessary modifying or amending the specifications, covering

the sizes of pipe, and in some other unimportant particulars
2675 so as to have secured the most advantageous prices. The most of the pipe shops in this vicinity at that time were in a combination or trust, but there were two or three other independent manufactories, such as the Dimmick Pipe Company at Birmingham, R. D. Wood and Company of Philadelphia and perhaps a Pipe Manufacturing Company at Lynchburg, Virginia.

Q. You say you would have visited these?

A. Yes sir I think that would have been money well spent to have personally visited those shops and secured this necessary information that you could not have obtained in any other way.

Q. Wouldn't that have been nearly as bad as the officers of the Company coming from Boston to Knoxville on the Company's business?

A. The offices of the company ought to be at Knoxville.

Q. When you made your replacement estimate did you visit any of these places for the purpose of getting prices?

A. No sir, for the reason that I wasn't prepared to buy a large lot of pipe.

Q. You were preparing to fix the price on our pipe, wer-n't you?

A. No sir I wasn't fixing the price on your pipe; I was ascertaining the price that was practical and obtainable on the date at which we made up the cost of replacement of the plant, and no doubt if I had been in position to buy six thousand tons of pipe at that time that I could have secured a better price than the one we used in making up this cost of replacement. There is a very great difference in obtaining prices of construction materials and machinery between a simple inquiry for prices or estimates on a given specification, and a condition where you are ready with the cash to make the purchase and as the trade would term "talk business" and in condition to do business.

Q. Now Mr. Nixon what has that long statement to do with my question?

2676 Mr. PICKLE: What has that last question you asked to do with the case?

A. In that statement I have endeavored to explain the difference between ascertaining the price and buying the goods.

Q. Do I understand that if the Water Company were going to buy a part of its pipe, it should visit the pipe factories, but if it were going to buy the whole of it, it should not?

A. No I didn't take any such position in the foregoing answer.

Q. Did you ever write to any of these pipe factories when you were making your replacement estimates?

A. Yes sir, but the company appeared to have me "hedged."

Q. What ones did you write to?

A. The United States, Addiston, Anniston, Radford, and also went to see the United States people or their sales agent.

Q. The United States Company has its chief office in Chattanooga where you live, hasn't it?

A. The sales agent has his office there.

Q. Now how had the Company "hedged" you?

A. Mr. Gray told me that he had previously received some letters on that subject, and that as the Knoxville Water Company was a customer of theirs, and indicated that they might be of more value to him than simply price hunters, and that he declined to furnish any information, and had done so before.

Q. I wish you would give Mr. Gray's language as nearly as you can remember it?

A. Well I don't think I can give you his exact language. I have given you the subject and the impression that it made upon me.

Q. Do you mean to say that the Knoxville Water Company had endeavored to prevent Mr. Gray from giving you prices of
2677 pipe for any purpose connected with this litigation?

A. I mean to say that that was the impression made upon me, although he didn't so state in that many words. I had also been informed that one of the Mr. Wheelers had gone to see them about the time this investigation commenced here last year.

Q. Who gave you that information?

A. I don't recall exactly.

Q. I wish you would refresh your recollection and give me the name of the person that gave you that information?

A. I don't believe I can recall who it was.

Q. Are you certain that you got that information?

A. I couldn't have dreamed it without I had had the information.

Q. I asked you if you are certain you had the information?

A. Why certainly I am positive I had the information.

Q. And you cannot recall now who told you?

A. I cannot recall now who told me.

Q. Was it somebody here or at Chattanooga?

A. I cannot remember that clearly.

Q. Did you ask Mr. Gray whether he knew General Elbert Wheeler *of* Mr. William Wheeler?

A. No sir I didn't ask him but he convinced me in the conversation that he did know them quite well.

Q. Personally or by letter?

A. I took it that he knew them both ways; he gave me some of their characteristics.

Q. What characteristics of theirs did he give you?

A. One was that he wouldn't sell them pipe as cheaply as he would some other people.

Q. Why?

A. He made the impression upon me, without explaining fully, that they were technical and sticklers on small and unimportant details, saying in the same connection that there was another
2678 large purchaser of pipe in the country that he would not sell to within $5.00 a ton as cheap as he would other people.

Q. Then your criticism of the method is that they paid too much for the pipe, isn't it?

A. Yes sir, and this investigation seems to sustain that conclusion,—I mean the pipe that the purchases cover by the invoices that were produced to sustain a higher value of March 31st, 1901, than our investigations disclosed.

Q. Why is it Mr. Nixon that the Water Company in buying pipe must be as particular as you have indicated in getting prices and that an expert witness in fixing prices upon the whole quantity of their pipe don't have to do any of these things?

A. I took considerable trouble in answer to a former question to explain that there is a great difference between a simple price hunter, as the witness would be, and a *bona fide* substantial purchaser for an attractive quantity of pipe.

Q. Why wasn't it your duty to consult these people?

A. Because I had sense enough to know that it wasn't worth while as they knew that I wasn't prepared to buy anything.

Q. And so because you were not prepared to buy but simply fixing a price upon this very large quantity of pipe, you didn't take the trouble to inform yourself very carefully?

A. Yes sir I took the trouble and did inform myself by another method, being about the only means that was open.

Q. Would it have been permissible for the Water Company to have informed itself by the same methods you adopted?

A. I hav-n't been running the Water Company and suppose it is permissible for them to do anything they please.

Q. Have you any letters in regard to the prices from any pipe foundry?

A. No sir not now. I had some but as they gave me nothing, I destroyed them I think.

2679 Q. Can you lay hands on any of them?

A. No sir I think I burned them up or threw them away.

Q. They gave you larger prices than the ones you adopted, didn't they?

A. They gave me no prices at all.

Q. You got no prices from any pipe foundry?

A. Not any from the United States combination.

Q. Did you get any outside of the United States combination?

A. No sir I got no replies from the others. They were afraid they might be summoned I suppose, or be annoyed with trouble on the subject without any benefit.

Q. So it appears to you that the one you did see had been prevented by the Water Company from giving you the information, and you suppose that the others didn't want to be annoyed?

A. That supposition would be a reasonable and practical conclusion, and the way I would have felt if the application had reached me as a pipe manufacturer.

Q. Have you got copies of your letters to any of the pipe manufacturers?

A. No sir I think not. I retained no copies of some of the letters.

Q. What pipe factories outside of the United States combination did you write to?

A. Well I really can't give you the pipe manufacturers that are in the United States combination, but I have given you in a former answer the names of the companies I did write to, but how many of them are members of the trust, I am not definitely able to say.

Q. Suppose that the Knoxville Water Company got prices from all

the pipe factories that you have named and from two or three others and held conferences with travelling representatives of the companies and then made propositions and accepted the lowest bid that was offered it for pipe, would you object to that method of proceeding?

2680 A. For what purpose do you submit this hypothesis?

Q. For the purpose of getting your opinion as to whether or not that is a proper method for the Water Company to adopt in getting bids on pipe?

A. That is you connect this supposition with the purchases covered by the bills that were submitted to controvert the cost of pipe used in our replacement estimate, or do you mean general purchases by the company?

Q. Read the witness the question again Mr. Stenographer, and let him answer it? (Question repeated.)

A. If for the purpose indicated in my inquiry, I do not consider the hypothetical proposition described as conclusive against actual purchases in competition after advertisement, and in fact conferences with traveling representatives, to which you refer, I don't regard as of much value as a personal investigation of the conditions at the shops of the manufacturers.

Q. What is the difference between a traveling representative and a local representative?

A. Well I wouldn't regard either of them of much value if I were going to buy six thousand tons of pipe.

Q. Why did you go to Mr. Gray then when you wanted information?

A. Mr. Gray is not a traveling or local representative.

Q. Did you go to the foundry in Chattanooga and examine into conditions there?

A. When endeavoring to ascertain the pipe value for replacement cost?

Q. Yes sir?

A. I did not; it would have been great folly if I had.

Q. Do you think it would have been any greater folly than for you to have estimated the price of this pipe of the 31st of March 1901 without getting any information from a pipe foundry?

A. I think that it would have been very great folly to

2681 have gone around pipe foundries to discuss ancient history instead of ascertaining practical action in the matter as of the date required.

Q. Did you want to get any prices from pipe foundries when you were making your inquiries about the price of pipe?

A. Yes sir I would have been very glad to have secured the proper information if it had been possible to do so.

Q. Now I want to ask you if you didn't get some information from pipe foundries about the prices of pipe, and if you have not suppressed it on this investigation?

A. I don't recall that I was able to get a single figure.

Q. Will you say that you did not get a single figure?

A. I don't think I did; I can't recall one.

Q. Do you know anything about combinations among pipe foundries?

A. Nothing more than a general and accepted information on that subject; I am not informed as to the inside details.

Q. Do you know that Knoxville is in territory that is exclusiveiy controlled in the matter of cast iron pipe business by the United States Cast Iron Pipe and Foundry Company?

A. I do not, and it wouldn't bind me if I was going to buy six thousand tons of pipe.

Mr. CALDWELL: I will ask the court to strike out the latter part of the answer, as it is purely an irresponsive statement by the witness.

COMMISSIONER: I will let it remain.

Q. Now when you were working upon your replacement estimate upon the supposition that you were going to buy six thousand tons of pipe, what company outside of the United States combination did you write to?

A. I don't think I wrote to any of them.

2682 Q Why not?

A. Because I knew it was of no use.

Q. How do you know it was of no use?

A. Because I thought the pipe manufacturers had something more to do than to be referring back two or three years to make up a supposition of what they might have been willing to do at that time. If the pipe company's books or records could have been accessible, I could have no doubt secured some information that would have been of great assistance, but of course I knew this could not be obtained by a simple request of a price hunter that didn't mean business.

Q. What individuals did you write to outside of the pipe foundry?

A. I think I wrote to a young man who was the former sales agent, or employed in the sales department of the United States Cast Iron Pipe Company, and to another friend in the shipping department perhaps, and also to a friend who was the shipping clerk some years ago of the South Pittsburg Pipe Company and endeavored to elicit some information in that line and particularly with regard to the date of the 14000 tons sale to the Mobile Water Works at $13.00 at Chattanooga.

Q. Well if you want to put the Mobile matter in any more, I will give you a chance to do it now?

A. I've got it in.

Q. Now where are the letters you got from these gentlemen you wrote to?

A. I don't know; I think I have destroyed them as they gave me nothing.

Q. Did they give you prices?

A. No prices whatever and very little information otherwise as some of them appeared to be afraid, and others didn't remember and some didn't know.

Q. Now what other inquiries did you make aside from those you have mentioned this morning?

2683 A. Do you mean what inquiry I made to establish the practical price at which the pipe could have been purchased at the time it was needed for the replacement estimate?

Q. I know of nothing like "practical price." I mean what inquiry did you make to get the market price of cast iron pipe?

A. I think I have before explained that the pipe people say that there is no such thing as "market price" and if you will refer to the Trade papers, I don't think you will be able to find a publication of prices of cast iron pipe like you can of pig iron or steel rails or boiler plates.

Q. I am not quibbling with you about terms; I am asking you about what other inquiries you made to get any practical price, market price or any other price?

A. I made all the investigation that was possible for me to accomplish in the time that was necessary, both by the study of the prevailing market values of pig iron and steel billets, &c., a few months before March 31st, 1901 and a few months afterwards, giving all these facts consideration and such sales or purchases or actual transactions that I could find from a combination of these facts, reached the conclusion that a practical price at the date required, March 31, 1901 would have been the figure that we used. I find that the Nashville purchase on competition after advertisement was at $18.40 at Nashville on March 16, 1901 and that the next lowest bid was $19.50.

Q. In ascertaining those prices I understand you gave no weight whatever to the actual purchases and the actual prices paid by the Knoxville Water Company during the year 1900 or 1901?

A. No, because I never had any facts or particulars governing such purchases, not even the date upon which they were made.

Q. And you had no particulars about these others did you?

2684 A. I don't know that they bought any pipe within several months of that date, no evidence so far having been adduced of that fact.

Q. When you were acting in your capacity as Water Works expert and reaching a valuation of this plant, did you deny yourself the help of the bookkeeping experts in the plans of the plant?

A. I hope not; I did not intend to deny myself of anything.

Q. Don't you know that the office of this company contains many vouchers shown to you for purchases of pipe in 1900 and 1901 and not one of them at a lower rate than $22.40?

A. I do not. Not a single voucher that I examined shows when the pipe was purchased, but only the date on which it was shipped and the price at which it is charged.

Q. And you didn't consider those at all?

A. No I didn't take them into consideration.

Q. Do you know Mr. John M. Holmes representing the United States Cast Iron Pipe and Foundry Company?

A. I don't think I ever met him.

Q. Do you know of him?

A. I don't believe I do; I don't recall that I ever heard of him. I may have heard that name too.

Q. On pages 59 and 60 of your deposition you state in general

terms that the most of this pipe was figured at $35.00, $32.00 and $25.00 and some at $20.00 through a period of 20 years, and that pipe has been a good deal lower during these years. What was now to adhere to your phraseology the "practical price" per ton of cast iron pipe for the fiscal year 1882-1883 of this company?

A. The only way that I could decide that question would be to refer to the memorandums of the prices paid by the Water Company during those years and reach conclusions from those prices; however, there might have been some consideration as to credit and other matters entering into even that transaction, that would pre-
2685 vent it from being a governing one as to the market price. I have those prices.

Q. The point that I am inquiring about is to get you to say what the practical market price in 1882-3 was for cast iron pipe by the ton?

A. In 1882 the Knoxville Water Company appears to have paid $33.80, $34.50, $34.85 and $35.40 for pipe, and in 1883 $34.45; and in 1885 $26.16, $26.40 and——

Q. I don't care for the prices between 1883 to 1891. I want you to state now what the price was in 1891?

A. The price they appear to have paid in 1890-1891 was $25.00.

Q. And how about 1892-3?

A. Well the next items I appear to have are $24.76, $22.60, $18.55, $17.33 and $18.97.

Q. What years are those?

A. The first prices named were for 1890 something and 1895-6.

Q. In those years they paid the amounts that you have just mentioned?

A. They appear to have paid the prices recited from the books of the pipe company which are also corroborated by the books of the water company.

Q. Now what were the market prices in 1897-1898?

A. As stated the price I find paid in 1897 are from $17.33 to $18.55. In answer to a previous question I stated that I found purchases in 1898 at $16.10 to $18.60 if I remember correctly.

Q. What was paid in 1898-1899?

A. The Lonedale-Beaumont purchase of pipe was at $23.00.

Q. About what date?

A. About 1895.

Q. If you took these from the books can't you turn now to the books in the office and find them?

A. I think I can.

2686 Q. Well what is it?

A. The books show purchases in 1898 at $16.10 and $18.60.

Q. How about the years 1899-1900?

A. For the year 1899 at $17.40 and other purchases in 1899 at $22.60 and some at $26.60.

Q. And some as high as $30.00 in 1899, isn't there?

A. I don't find anything above $26.60 in 1899.

Q. Well how about the year 1900?

A. The purchases for 1900 appear to be at $27.25.

Q. Now what are the amounts in 1901?

A. This book don't reach 1901.

Q. The vouchers show the prices paid in 1901, don't they?

A. Yes sir my recollection is from $27.25 to $27.75 the bulk of them.

Q. Did you take the prices you have read off for the year 1882-1883, as being the market or practical price?

A. I should consider that they were approximately so.

Q. Do you consider it so because they are on the books?

A. Because they were actual *bona fide* transactions, although as stated in a previous answer there might have been conditions connected with that sale that would prevent it from being at as low prices as might have been obtained under other conditions.

Q. Have you any reason for thinking that the purchases made in 1901 were not also *bona fide* transactions?

A. I have seen no purchases in 1901 on the books.

Q. Well look at the book and see if you find any now?

A. I do not.

Q. Were any purchases made in 1901?

A. I see no record of any in the books.

Q. Have you found any purchases made in 1901 in your
2687 investigations here?

A. I think not.

Q. Didn't I show you a number of vouchers for 1901 the other day?

A. You might.

Q. Well didn't I show them to you?

A. In my replacement matter I stopped at March 31, 1901 and up to that time I found no purchases. I notice this second book of Mr. Wheeler's carries a balance forward.

Q. You state on page 63 of your deposition that you have seen a statement of the pipe that was required by the Moses Lane plan, so called and that there is a difference of 300 tons of same length of pipe between that and the McDonough plan. Can you give the length of each size and weight called for under these two plans for purposes of verification?

A. My recollection of that statement is that it showed the exact length, but the modified or reduced plan was 300 tons less in weight which was reached by the substitution of smaller pipe and a rearrangement of the sizes of pipe, but the result was that the modified or readjusted plan required 300 tons less than the original Moses Lane plan.

Q. Now I have asked if you could give the length of each size and the weight called for under each of these statements?

A. I can if I could find the deposition. I believe I have a memorandum of it also. I will look.

Q. Whose deposition was it in?

A. It seems to me it was in Mr. Van Gilder's; I cannot recall. It might have been the City Engineer or the Water Works Superintendent; I am unable to say.

Q. Suppose you bring that statement in Tuesday morning when we reassemble?

A. Very well sir, for I am certain that I have it and that it shows 300 tons less than the Moses Lane plan.

2688 Q. You refer on page 64 of your deposition to price for setting hydrants allowed to Wheeler & Parks at $70.00 each. That was for setting hydrants on old pipe, wasn't it?

A. I don't recall. The contract would show definitely.

Q. On page 64 of your deposition in this case you will find a statement made by counsel for the city in regard to it quoting from the contract. See if you don't find that that price is for setting hydrants on old pipe?

A. Yes sir this quotation says "setting hydrants on old pipe $70.00 each."

Q. The Construction Record Book shows *that* all pipes, gates and hydrants furnished, laid and set by William Wheeler under the contract of November 17th 1893, doesn't it?

A. I expect it does. It shows a lot of pipe set by him.

Q. I wish you would examine it, or maybe you have examined it, and state whether or not there appears to be a single hydrant set at the price of $70.00 or at any other price for that matter by William Wheeler?

A. The company's book denominated "Construction Record" which I understand was made up from sheets and reports about the year 1895 or 1896 sets out on page- 38 to 59 inclusive various quantities of pipe, valves and fire hydrants of various sizes and dimensions by Wheeler & Parks and William Wheeler, but does not give the cost of any item of this construction whatever, either pipes, valves or hydrants. I suppose that this was the construction that was paid for in stock.

Q. Well if you wish to add any other irrelevant matter, you may do so now? I will repeat the question: Do you find any evidence there *the* William Wheeler set any hydrants on old pipe? That is all I have asked you about?

2689 A. Well these books don't disclose whether the pipe was old or new.

Q. Look at the matter of setting the hydrants and see if it don't disclose it?

A. Well on page 47 it shows the one nozzle hydrant set during the year 1893 or 1894 in Main street former dead end east to Central avenue.

Q. Don't it show that there is an extension and therefore new pipe?

A. Where there is some 18 inch pipe?

Q. Don't it show that there is an extension and therefore new pipe?

A. It shows an extension but doesn't show whether it is new pipe or old. It might be new or it might be old; the books don't disclose.

Q. Who set that hydrant?

A. The books state it was laid by William Wheeler under contract of November 17th, 1893.

Q. But it was on an extension?

A. I presume so as this record purports to show extensions and additions.

Q. How do you obtain the average purchase price which you apply to the 275 meters in the plant March 31, 1901 to obtain the result of $4397.97?

A. I took the aggregate charges for these meters as obtained from Mr. Wheeler's estimates on pages 42 to 98, covering 284 meters and costing $5550.75 and deducted 8 meters taken out for which he allowed $367.00 which left $5183.75, and then I took the purchases of meters reported by Mr. Kimball, covering 1364 meters running from ½ an inch to 6 inches in size and computed the same and divided the sum by the number of meters and obtained an average price for each meter of each size and then multiplied the meters existing in the plant on March 31st, 1901 at those prices and
2690 secured a cost of $4397.97 and added to that total an estimated cost of setting the meters of $207.00, making $4604.97 and producing an overcharge or excess estimated on this item of $578.78.

Q. What was your average charge on ½ or ⅝ inch meters?

A. $8.36 to $8.85.

Q. Which did you use?

A. I used $8.36 on ½ inch and $8.85 on ⅝ inch.

Q. And on ¾ inch?

A. On ¾ inch I used $12.25.

Q. On 1 inch?

A. $16.55.

Q. Two inch?

A. Well on 1½ inch first, I used $27.92, and on 2 inch $49.58.

Q. On 3 inch?

A. $83.25, and on 4 inch $402.00 and on 6 inch $450.00.

Q. How much did you allow each meter for setting?

A. It seems that I have just made a lumping estimate of $207.00 for setting 276 meters, taking into consideration that some of the meters would require no boxes or not very much expense in setting.

Q. What does that $207.00 include?

A. Oh it is supposed to include the drayage of the meter at the place, and the digging of the hole, disconnecting the pipe and placing the meter.

Q. Does it include connections?

A. Well I expect I figured it to include connections or that the price of the meter should. In our replacement cost we went over that in more detail.

Q. How much do these connections cost a pair?

A. I see they are charged from 30 to 50 cents.

Q. This uses up practically all your estimate for setting them, don't it?

A. No it would not use half of it.

Q. What do you allow a piece for setting?

2691 A. As stated in a previous answer, I made a lumping estimate on this lot of $207.00 for 274 meters, taking into consideration that probably one-third of them would require no excavation, being placed in buildings for elevators and other service of that character. When you come to our replacement cost, we will give you our information in detail on them.

Q. Well how much a meter is this for these settings?

A. $207.00.

Q. I mean how much for each meter?

A. It would be 207/274; or $207.00 divided by 274 as an average.

Q. That is 75½ cents each?

A. I presume it would figure about that, but as before stated I considered that about one-third of those meters would be located inside of buildings for elevators and such services and not requiring much expense at setting, and the further fact that a great many meters that belong to water takers were perhaps installed by those like services.

Q. What size of meter is it put inside of a building for elevators?

A. I don't know; various sizes I presume—owing to the character and capacity of the elevator and speed at which it is operated.

Q. From ¾ of an inch up?

A. Well I really don't know. I should judge that ¾ of an inch would be as small as would be allowed for an elevator.

Q. You think it would be permissible to use a ¾ inch one, or practicable to use it?

A. I really couldn't say. The hydraulic elevators I have operated had no meters on them; the water was measured by a gauge on the elevator which showed the amount of water consumed, which I think was more practical and reliable as a meter.

2692 Q. Do you undertake to say that there were any meters on elevators in this city?

A. I have no idea.

Q. Didn't you say a while ago that one-third of the meters were set on elevators and like services?

A. No sir, I said probably one-third were set inside houses for elevators and other services.

Q. You know nothing practically about water meters, do you?

A. No, I don't know much about a water meter; I am not much in love with them; they have too much of a reputation for swindling.

Q. I suppose it was for stating facts without evasions they were noted?

A. No, I am inclined to think they state facts that are not true.

Q. You state that you have used the prices of J. L. Ludlow as he stated them at Chattanooga for laying pipe of sizes from 3 to 20 inches?

A. Yes sir, I so stated.

Q. Did you read Mr. Ludlow's deposition in this case?

A. Yes sir, and in the Chattanooga case also which he reaffirmed in this case.

Q. Now I will ask you to read the last line of page "79" of Ludlow's deposition, and the first 7 lines on page 80 of it and see if those lines I have referred you to are not in these words: "Looking to the general character of construction here and a comparative character of the work here and at Chattanooga, are they of the same grade, or is either better than the other? A. I think the character of construction in Knoxville Works is a very high order indeed. Q. Well, as compared with the works at Chattanooga? A. I think it is superior, in fact quite superior." That occurs in Mr. Ludlow's deposition, doesn't it?

A. Yes sir, but I wouldn't agree with him on that.

Q. I have never supposed for a moment that you would. On page 70 of your deposition you are asked to assume, that
2693 in Knoxville, as testified to by Mr. Rourke and Mr. Dearing, $1.00 to $1.25 a cubic yard is a fair price for such excavation (meaning thereby rock excavation). Please point out the pages of these depositions where Messrs. Rourke & Dearing make any such statements?

A. On page "267" Mr. Dearing in answer to the question "What in your judgment would be a fair price per cubic yard for rock excavation from the trenches that are cut through the streets for laying pipe? A. Well the prices I have gotten for that have been from $1.00 to $1.25. Some jobs would run $1.00 and you could come out nicely, and others would run a little more." On page 305 Mr. Rourke is asked "what per cent., that is how much out of one hundred feet, does the rock excavation average in trenches in Knoxville, taking it all together? A. Taking it as a whole it would not hardly run anything at all."

Mr. CALDWELL: I don't want that now. I want what Mr. Rourke says about the prices of excavation?

A. Mr. Rourke is asked on page 305 "Now what is such excavation as rock excavation in ditches of 2½ to 3 feet wide worth per cubic yard, and what can it be done for, and what is the usual price for such excavation? A. Well where it is in small ditches, and don't measure very much, it is worth $1.25, and where it is larger, where the excavation is larger it could be done for, in some years past, for $1.00."

Q. Doesn't Dearing state at the bottom of page 281 that he never measured a particular piece of rock work, nor kept the items so as to say what it did cost?

A. He says "I usually made it as a part of the general estimate of the work." Professor Brown will give you all that when he comes on the stand.

Q. Don't he also say that he is not prepared to speak as to the cost of that particular item itself. (See page 282 of his deposition.)

2694 A. Yes sir in answer to a question of that character he says: "No sir."

Q. But you have taken his testimony in part for that particular item and based your judgment on it?

A. Yes sir but I have never read Mr. Dearing's deposition through

further than that part of it where he testified to the cost of this rock excavation, and didn't follow it through the cross examination. I knew he was a plumber in the city and supposed he was an experienced man and took his testimony in chief without following it through the ramifications.

Q. You also took Mr. Getaz's statement about rock excavations as a part of the basis of your estimate for rock excavation, didn't you?

A. Yes sir that related more particularly however to rock excavation for building purposes or construction work rather than pipe laying.

Q. You did that despite the fact that Getaz says he never did any rock excavation in trenches for laying pipe and added that at first he didn't want to make the estimate, and that he knew the price was excessive (referring to our prices) but if we wanted to we might strike him out of that, adding "I am perfectly willing because I am not acquainted with that class of work"?

A. —which I understand refers to rock excavation for pipe laying. I also had other facts as to the cost of laying pipe at other places, that is in laying 6 inch pipe in 80 per cent. rock at only 18 cents.

Q. Do you personally know anything about the quantity of rock excavation that should be charged?

A. No indeed. I have relied on others for this kind of information who were experienced in doing that kind of work and familiar with the conditions at various places. I of course
2695 know personally that this is not a rocky city, nor is Chattanooga very much so, but at Nashville you are hardly able to set a telephone or telegraph pole in that city without encountering rock.

Q. You know a good deal more about Nashville than you do about Knoxville, don't you?

A. Why not much I should say.

Q. You rely largely on Mr. Rourk's judgment in this matter of rock excavation?

A. Yes sir I would regard Mr. Rourk as good authority for that character of work.

Q. You rely upon his judgment also as to the percentage of rock excavation, don't you?

A. Yes sir I should think that was good, as he states that he was intimately connected with the original water works, Construction, here and has been in the plumbing business and familiar with the conditions encountered in this city for 20 years or more continuously and I would therefore consider him good authority.

Q. And yet he says in regard to these percentages that his estimate is a mere guess, doesn't he? saying that on page 317 of his deposition?

A. He starts out on page 305 by saying——

Q. Well sir you are at liberty to put in anything you can find about it?

A. In answer to a question about his experience in Knoxville

he answers "Oh yes sir I have followed the business all the time," and when asked what per cent., that is how much to the 100 feet does rock excavation average in trenches in Knoxville taken altogether he says "taking it as a whole, it will not run hardly anything at all. One per cent. would be too much for it." He is then asked what would be about right for it and he answers "one-half
2696 of one per cent. is one-half of that, but it don't look to me like, from my experience, that it would reach one-half of one per cent., the whole territory of Knoxville.

Mr. CALDWELL: I would like for the witness to answer my question relating to page 317 of Mr. Rourk's deposition and then if he wants to read the rest of it he may do so.

WITNESS: I will have to ask you to point out such answer as you desire?

Q. It is the second question from the bottom on page 317?

A. Yes sir the question is "your estimate of the percentage of rock excavation is merely a guess, as I understand," and he answers "that is all it is."

Q. What amount of macadam do you allow the water company?

A. In what instance, and for what purpose?

Q. As stated on page 71 of your deposition?

A. It appears in answer to a question based on the evidence of Messrs. Rourke and Dearing that the price of 2½ cents for restoring macadam is correct. I have answered, giving the pages and total footage of macadam charged in pipe laying as 150057 feet at 6 cents, $9002.27, and that figuring the same quantity at 2½ cents or 3 cents, and deducting one-half the price and two-thirds the quantity would give $1500.57 and produce an overcharge on this item of $7501.70.

Q. Now what period do you cover by that?

A. It appears to cover the three hundred thousand and odd feet of cast iron pipe laid in the plant which would reach up to March 31, 1901.

Q. How many miles of pipe in the system of the Knoxville Water Company. An approximate statement will do. Isn't it 67 or 68 miles?

A. Mr. Kimball and Mr. Donaldson's certificate on the Pipe Book of the Knoxville Water Company, page 103 shows 54.38
2697 miles of cast iron pipe and 14.2 miles of wrought iron pipe, making a total of 68.59 miles.

Q. Do you undertake to correct that statement?

A. No I have adopted the measurements upon which this mileage is based in my estimates and calculations.

Q. Do you know how much of that 68 miles is macadamized?

A. No sir I do not, but I should assume that it was a relatively small percentage, particularly when I recall the fact that a large amount of this pipe was laid in this city before there were many streets.

Q. What did you know about Knoxville in 1883?

A. I was around here occasionally walking and wading through the mud at those times.

Q. Don't you know that a majority of the streets in Knoxville were macadamized in 1883?

A. I know they were not unless the macadam was under the mud.

Q. You are willing to swear positively that they were not?

A. That is my recollection and experience.

Q. Well how much do you allow to have been macadamized in 1882 or 1883?

A. I have never undertaken to make any exact proportions, having relied upon the evidence of Messrs, Rourke and Dearing for that.

Q. What do they make it?

A. The deductions from their. evidence would reduce Mr Wheeler's estimate two-thirds.

Q. Are you reading their testimony and quoting it, or are you making deductions from it?

A. I am quoting in substance from a former answer of my own made after making up my calculations from the evidence of these gentlemen.

Q. Have you any idea whatever of the mileage of the macadamized streets now in Knoxville or here in 1883?

2698 A. Nothing more than a loose, general idea.

Q. Is that what you are testifying on?

A. No sir I have stated that my testimony was based on the evidence of the plumbers and men of experience.

Q. Do they state the mileage?

A. No sir they stated the percentage and I calculated the quantities from their statements of percentage.

Q. How do you allow this macadam to be spread on the streets in your estimates, what depth and what width?

A. I hav-n't paid any attention to that. I left that to the plumbers and to the men that knew about it.

Q. You don't know anything about it do you?

A. Yes sir I have spread macadam and rolled and handled it and know how it is done.

Q. You don't know how it is done here do you?

A. I suppose it is done here like it is everywhere else. There is not much science required in spreading macadam, no intricacy in understanding such work.

Q. It does not require expert knowledge. Now what depth would you allow for the macadam here as proper?

A. I really never paid any attention to that feature.

Q. Well how deep ought it to be spread in these ditches?

A. That would depend upon the place where the work was being done. It might run from 2 inches to 6 or 8 inches.

Q. You think 2 inches would be thick enough in some cases, do you?

A. Yes sir; no doubt there is considerable pipe in Knoxville that hasn't 2 inches of macadam on it, on the street or over the pipe.

Q. Have you made any investigations to see whether that is a fact or not?

A. No it has not been necessary. I have had other things of more importance to investigate that has occupied my time.

2699 Q. Your expertness then extends to knowing the depth of macadam in places you know nothing about?

A. No, it consists in not wasting my time on small matters of this character.

Q. Now what did you devote your time to in connection with this macadam?

A. The most important application of time to this subject was the consideration of the evidence of the Knoxville plumbers, and reaching the conclusion that I have obtained by the calculations made from the percentages to which they have testified.

Q. When you appeared as a witness in this case you qualified as an opinion witness, didn't you? competent to give expert testimony upon matters pertaining to water works and maintenance?

A. I don't know about that. I gave my experience in reply to a question along that line, but whether it filled the measure contemplated by the stereotyped objections that you have several hundred times interposed, I cannot say.

Q. In regard to macadam, you have made no measurements, have you?

A. No sir not an inch.

Q. And you have made no observations on the ground?

A. No more than noting in passing over the city that there is a large mileage of streets without macadam, or with very little macadam in existence at the present time.

Q. You don't know the price of macadam now or at any other time in passing over the city of Knoxville, do you?

A. Yes sir I have made some investigation on this subject and find it runs from 25 cents to $1.00 per yard.

Q. Now what other original or personal knowledge of the subject of macadam or its uses in Knoxville, have you?

A. I don't suppose that I am very scientific on the construction and use of macadam.

2700 Q. In other words your testimony as to macadam amounts only to a reaffirmation of what Rourke and other witnesses have said, don't it?

A. I consider that that is sufficient in this case.

Q. And they all know more about it than you do, don't they?

A. Having handled it here, and paid for it, and being experienced in the work, I assumed that they knew more about it here than I did.

Q. They are qualified to swear about it but you are qualified to swear about it, are you?

A. That is a question that I wouldn't undertake to debate.

Q. I don't want you to debate it; I want you to answer it?

A. They have sworn about it and I have sworn about it and I take it that the evidence separately and combined would be entitled to a reasonable consideration, whether it is based on expert knowledge or scientific information.

Q. Is the cost of filling ditches that have settled a charge to re-

pair account or to construction account when the ditch itself was a part of the original construction?

A. That is a somewhat elastic question which would depend upon the conditions governing the matter. I should say that on a job of new pipe laying that if the ditches had settled that the expense necessary to attend to same would be construction or a part of the new work or extension or additions, but that if in the course of time ditches had settled and it became necessary to repair the streets and restore them to proper condition, that the latter expense would be more in line as an operating expense or maintenance expense, being done by the street force, that is employed by the Company as an operating expense.

Q. What period of time would you say should elapse in order to change such expenses from construction to repair charges?

2701 A. I couldn't fix any definite time as it would depend somewhat upon conditions.

Q. What conditions could it possibly depend on except the length of time?

A. Well the length of time is the leading condition, and it is a variable one, as in some character of soil the shrinkage might occur soon and in other soils it might require a much greater time.

Q. Well take Knoxville soil in Gay street out here; what length of time would you allow these construction charges, and when would they become repair charges?

A. I am not very familiar with the character or analysis of the soil of Gay street, but in work in a locality of that character I should say that a shrinkage, to be charged to construction account, ought to occur pretty soon as there is a heavy traffic on Gay street.

Q. Coming to what you say the books show as to purchases and cost of pipe. You state that on April 1st, 1899 you found purchases of ¾ inch pipe at 10 cents less 60 per cent., 10 per cent., 10 per cent. equal to $3.24. Please show us this item on the books?

A. I evidently referred in that answer to pipe purchased from Sumner and Goodwin shown on page "98-A" being one of the annex pages to the book marked "Treasurer's accounts" where there are two purchases of ¾ inch pipe that I read as 10 cents less 60 and 6/10 off in one instance and 50 less 2/10 off in the other, from which I arrived at my information, but General Wheeler, who is no doubt familiar with these amounts, or the handwriting, says that these amounts taken as 10 cents are 19 cents, the place where one of them is having been scratched and the amount scratched and the position of the amounts changed so that I may have been mistaken in that conclusion.

2702 Q. Dividing the total number of dollars by the total number of feet it gives 4.03 cents per foot?

A. Yes sir dividing the amounts as shown now by the number of feet would give about 4 cents in one instance and 7.7 in the other, using the amounts now found on the books.

Q. You didn't say anything about the 7 cents item in your first examination did you?

A. No sir I stopped at the first item where I thought I had found 3.24 cents.

Q. Well you were wrong in that too wer-n't you?

A. I have just explained the recent examination of these charges.

Q. Now this figure per foot 7.69 is nearer the date of March 31, 1901 than the entry that you were going on, isn't it?

A. It appears to be entered on the book January 23, 1900.

Q. And when does the other appear to be entered on the book?

A. April 1st, 1899, nearly a year apart in date but right together on the book which explains perhaps the disparity in the prices of the two purchases or charges.

Q. You state that you have figured valves at the prices given by Mr. Ludlow on page 41 of his deposition. Isn't Mr. Ludlow's statement on this page 41 in answer to a question calling for prices that he used at Chattanooga and not in this case, and to the effect that these were the market prices at that date? I ask you to look to page 41 of Mr. Ludlow's deposition and see if he doesn't so state, and then if you didn't get it from page 41 and want to add another statement, you can do so?

A. Mr. Ludlow states when asked "I will ask you to state at what figure you did estimate gates or valves in your estimate in the Chattanooga case?" He answers "At the market value as of that date as near as I could determine. Q. Well did you estimate gates
2703 as follows" (giving the prices that I have used). He answers "That sounds very much as though those were the prices of that date, yes sir." I find that in my answer in chief on the valve question that I first used the prices obtained by computing the same from the prices given by Mr. Kimball for 290 valves in his deposition, and also at the prices given by Mr. Ludlow in his deposition, Vol. 3, page 41, which must be the one you ask about.

Q. And Mr. Ludlow's prices were those which he established as his prices in the Chattanooga case some years before the date of his deposition in this case and yours?

A. Yes, sir, but that date would be applicable for the purposes that I was using it, as I was endeavoring to reach the overcharge.

Q. Did you know what date Mr. Ludlow was assigning his answer to when you made your answer on page 77 of your deposition?

A. He testified in the Chattanooga case in July, 1900, and of course I assume referred to prices before that time.

Q. Do you think that the prices of valves and gates in Chattanooga in July, 1900, would have any bearing on the same items in Knoxville in March, 1901?

A. The prices testified to by Mr. Ludlow in Chattanooga in July, 1900, for valves before that time would be good for comparison or charges for valves as of those years. In making up a replacement cost of valves in 1901, I should and did use a different method in ascertaining prices of valves, which will be explained to you when you reach that examination, if you desire.

Q. What use do you make of the Ludlow estimate just referred to on page 77 of your deposition—simply to show the price of valves and gates in a certain year?

A. It was used on page 77 of my deposition, together with
2704 the prices of valves given by Mr. Kimball, to show that Mr. Wheeler's estimated charge for valves was from $1000.00 to $1459.00 excessive, and it appears to me conclusively that it did so.

Q. How much freight was included in Mr. Kimball's estimate?

A. I don't recall as the freight was taken into consideration, as that is a small matter on valves, some manufacturers selling them delivered, and in other instances probably 5% is necessary to cover this charge.

Q. But you didn't allow the 5%?

A. No, I think I simply used the prices of valves that Mr. Kimball reported in his testimony.

Q. Was there some freight in Mr. Ludlow's estimates?

A. I do not know, as he did not explain.

Q. You don't know whether you figured the Kimball estimate and Ludlow estimate on the same basis or not then?

A. Yes, sir, I think I figured them on the basis of taking them as I found them, which would be the same basis to me.

Q. You found in Mr. Kimball's deposition an express statement that freight was to be added to his estimates, didn't you?

A. I don't recall.

Q. And you don't know whether it was to be added to Ludlow's or not do you?

A. No, sir, I did not investigate that, but in our replacement cost we considered all those things.

Q. Yes, sir, I concur in your suggestion a few moments ago that we let the replacement cost go until we come to it?

A. That would perhaps be proper, as it is much more elaborate and gives all these items in full detail.

Q. Do you know whether or not Mr. Ludlow figured on the same quality of gates and valves in this case as in the Chattanooga case?

2705 A. No, I don't know positively, but I wouldn't think there was such difference as I noticed in going through the Chattanooga case that the valves appear to be bought largely from the same parties, being perhaps more Coffin valves here and more Crane and Ludlow valves there and some Lunkenheimer.

Q. Don't you think in making statements of this kind it is your duty to know exactly what you are talking about?

A. No, sir, I think I have gotten sufficiently close to the price and values to make an estimate to be used against an estimate, when I secured facts upon which to ascertain my costs.

Q. Referring to incomplete depreciation as shown by Mr. Wheeler's tables amounting to $77726.51 to which you refer on pages 78 and 79, do I understand that you are simply quoting Mr. Wheeler or are you offering testimony on the subject?

A. It appears that I was quoting Mr. Wheeler in this depreciation matter.

Q. Am I correct in inferring that you are somewhat in doubt as to Mr. Wheeler's meaning in this incomplete depreciation?

A. No, I don't think I fail to understand him as to his delineation

of this part of the plant which had disappeared or evaporated or returned to its original elements.

Q. You state that these depreciation amounts made by William Wheeler include the 20% allowances. Please state your reasons why you think the 20% is included in these amounts?

A. I stated that the 20% was included by Mr. Wheeler in making up his valuation of the depreciation, and that in that instance I did not disturb it but that in all my other comparisons that my comparisons were with his figures before he added the 20 % for profits and other extras.

Q. Are you sure that it is not taken out here where you are testifying about it on page 79?

2706 A. Will you please indicate the instance or item about which you inquire?

Q. The full item covered by your testimony beginning at the bottom of page 78 and running down to the middle of page 79?

A. Well, there are no items shown there except I have shown what the 20% amounted to, to-wit: $114292.71 which is included in Mr. Wheeler's total estimate of $711392.00.

Q. Now I want to know how you know that the 20% is included in that $77726.51?

A. Because I saw it where the amount was dissected as it was made up, and to each part is added the 20% by Mr. Wheeler.

The further taking of this deposition was adjourned until Tuesday, November 3rd, 1903, at 9:00 o'clock A. M.

2707 TUESDAY MORNING, *November 3rd*, 1903—9:00 o'clock a. m.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

The WITNESS: Replying with your request to furnish on Tuesday morning the sizes of pipe of the Moses Lane and McDonough plans, I here give them as follows:

Original Construction.

Moses Lane plan.

20 in.,	305 ft.	195#
16 "	4112 "	150#
14 "	.....	
12 "	4581 "	87#
10 "	.....	
8 "	12000 "	50#
6 "	13675 "	35#
4 "	9795 "	22#
	44968 "	

= 8½ miles or 2.443.937 #
= 1221 tons

McDonough plan.

305 ft.	108#
2272 "	94#
2340 "	82#
4581 "	54#
8000 "	43½#
17675 "	33#
9795 "	23#
44968 "	

= 8½ miles or 1.847.322 #
= 921 tons
300 tons less than Lane plan.

Q. Where did you get this statement, Mr. Nixon?

A. From the depositions in the old case, or the other case. I don't recall which particular deposition. I think it was Mr. Vangilder's perhaps.

Q. Isn't it from Col. Lockett's deposition?

A. Well, it might be. If I had the papers I could definitely point it out.

Q. I wish you would look and see which one it is in, please?

A. After an examination of the papers I find it to be in the deposition of Mr. J. S. Van Gilder Exhibit "B" May 17, 1886.

2708 Q. In reply to a question on page 79 of your deposition you give $48122.98 as the total of the 20% allowance on the pipe system. How do you obtain that result?

A. I find that I figured 20% on $240614.90 worth of pipe alone which produced the $48122.98 to which I refer.

Q. Where did you get your $240614.90, not from Mr. Wheeler's deposition was it?

A. Yes, sir.

Q. Whereabouts in Mr. Wheeler's deposition?

A. I seem to have gotten it by a collation from his deposition from which I obtained 300084.7 feet, aggregating $240614.90.

Q. That is the total cost of the pipe system?

A. The total cost of the pipe put in, yes, sir.

Q. Is it for the pipe itself or for the pipe laid?

A. For the pipe laid. It is a summation of the pipe of different sizes made up to ascertain the total cast iron pipe laid.

Q. What do you make the charge of engineering as applied to the pipe system?

A. In that answer I separated the pipe system into 21 parts and multiplied the result by "6" for engineering, which secured $13748.42.

Q. Did you collate Mr. Wheeler's 20% allowances on piping by themselves?

A. I believe I did in another way.

Q. Now what do you make the total of 20% on piping from that collation?

A. From that collation, giving the pages which included appurtenances along with the pipe I secured an amount of $321202.52 on which the 20% was $64868.82.

Q. Up to what date was that Mr. Nixon?

A. I think that was up to March 31st, 1901, as I see the

2709 last page was page 98.

Q. Wasn't that to September 30th, 1902?

A. I think not as I don't appear to have gone further than page 98 of Mr. Wheeler's deposition.

Q. Mr. Nixon in getting up your total pipes amounts I will have to ask if you didn't include the amount of 12 inch pipe set out in the partial table which was excluded from your deposition?

A. No, sir, this was a different kind of a table entirely. This was a table taken from Mr. Wheeler's deposition.

Q. Well, then you remember that at a former date we corrected

an amount of 12 inch pipe which appeared in your copy of the deposition at $1892 and odd cents where it ought to have appeared $8190 and odd cents?

A. Yes, sir, I remember the correction.

Q. Now this amount of pipe which you are calculating on at present was made on the basis that that amount was $8100 or $1800.00.

A. This amount carries the same error that the former table does and is $6300.00 less than that correction made. That is to say instead of $240614.90 if corrected it would be $246814.90 which applies to the dollars and not to the feet or tonnage of pipe.

Q. Did you ever design a complete water works system?

A. For a city?

Q. Well a complete water works system anywhere?

A. No, I don't think I ever did except for the part I took in the designing of the Penitentiary plant and water supply for the Brushy Mountain mines and probably water supply for some other mines.

Q. You made no plans as I understand you, and no calculations looking to proper size, weight, &c., of pipe?

2710 A. No I don't think I ever went through those details.

Q. Did you ever build a complete water works system?

A. Yes sir I built one of that character——

Q. You did not do the engineering, did you?

A. —but not for a general water supply however.

Q. You did not do the engineering, did you?

A. No, I had assistance in the engineering and calculation of details.

Q. Are cast iron water pipes, which are of the same size, always of the same weight?

A. No sir, the weight depends upon the thickness of the pipe and the way they are cast, and perhaps some other conditions.

Q. What knowledge and experience are necessary to determine the proper weight of any particular locality or any particular plan?

A. I should think that levels should be taken and the pressure calculated and the strength of the pipe apportioned in accordance therewith, with a reasonable factor of safety.

Q. What factor of safety would you consider?

A. That would largely depend upon the condition I was endeavoring to safe-guard against. I don't think any uniform factor could be adopted.

Q. Certain conditions being given it requires, does it not considerable engineering and expert knowledge to know what weight of pipe to select?

A. No I think that is a simple proposition as experience has pretty thoroughly settled the requirements for the different conditions.

Q. Assuming conditions to be as they exist in this city, what factor of safety would you consider?

A. Assuming that you refer to the strength of pipe to withstand a given pressure, or pressure in a given locality, it has been

2711 my experience to allow a little more than the book people generally figure for such things, so that in a case where the pressure should require the pipe to withstand say 60 pounds, I

would figure on making it sufficient to withstand 90 or 100 pounds; but this is a subject which is open to argument, as there is quite a difference of opinion.

Q. Would you consider from 90 to 100 pounds entirely safe under such circumstances?

A. If the pressure couldn't exceed 60 pounds I should think that a strength to withstand 90 to 100 pounds would be a sufficient factor of safety.

Q. How much water hammer would you get upon a system where the regular pressure was 60 pounds?

A. I will pass on that. I am not up on the theory of water hammering.

Q. The water hammer is a question that enters into the necessary weight of the pipe in any given system, isn't it?

A. Well it might, and it might result from other things besides the thickness of pipe. In fact I think it should result more from the way the water is distributed or handled than from the character of the pipe.

Q. But that is a question that has to be considered in designing a water system, isn't it?

A. It might be necessary to consider it and it might be necessary to correct it.

Q. If it is a necessary thing to be considered, it is also necessary that the man designing the works should know about, it, isn't it?

A. Yes sir, or be able to correct it if he found that he encountered it.

Q. How would one be able to correct it who does not know how to deal scientifically with such a question?

2712 A. Oh there are many pipe foremen who know how to handle that kind of a question without knowing any science whatever.

Q. But you don't know, do you Mr. Nixon?

A. No sir I don't profess to understand the science imbedded in a water hammer proposition, if there is any science in it.

Q. If ordinarily a foreman would know about things of this kind, you are placing your own knowledge of it below that of the ordinary foreman, are you not?

A. No sir my answer didn't make that kind of a comparison. I only stated that a capable pipe foreman would no doubt be able to handle a water hammer proposition if he encountered it.

Q. What do you mean by water hammer?

A. I mean a movement of water where it hammers the pipe or shakes the joints, which I understand is the subject you have raised.

Q. It is not the movement is it, but the stoppage of the water that makes the water hammer?

A. It might be both or either, I am not able to say, as I never had much experience with that kind of thing, but I have had some experience with engineers in pipe troubles where they have advanced some very strange theories on these things. I remember in one instance a very capable engineer claimed that water couldn't reach its

level with a small pipe against a large one, and never would be convinced until it did do it.

Q. Now this matter of water hammer must be provided against, must it not when the works are designed, and not corrected by reconstruction or replacement of pipes after the works are put in operation?

A. I suppose from an examination of the specifications of
2713 Moses Lane for this city, that he attempted to protect against these things by his proportioning of the pipes as applicable to the various elevations.

Q. But my question was is it not necessary to make allowance and calculation for the water hammer when the system is being designed by the engineer and not wait until the system is constructed?

A. I expect that is true, though I am not prepared to speak from a scientific point of view on that subject, though I have an opinion that it might occur even after the scientist had made his design and that it would be necessary to make some simple change to correct this trouble afterwards.

Q. This subject of water hammer however must be handled in designing the works by someone who understands the subject, must it not?

A. I have never handled it and would refer this subject to an engineer requiring some proper proportioning and calculating.

Q. A foundry naturally would rather sell heavier pipe than lighter pipe of the same size, would they not?

A. I expect they would as it would give them a greater tonnage. I think they make about three weights usually of pipe.

Q. Could not an engineer of experience in the one point of calculating the weights of pipe necessary for a particular locality and seeing that that weight of pipe was used at the points it was designed for, save more than his 5% or 6% to the plant as compared with what pipes furnished by the foundry on their own specifications would amount to?

A. Well he might and then he might not. That would depend somewhat upon who handled the construction. I should think it would not be a very difficult matter to ascertain the elevations to be encountered and properly proportioned the pipes in each lo-
2714 cality. I see in the original designs of the plant for this city that Mr. Moses Lane and his assistants devoted some attention to this subject, but whether it was followed out or not I do not know as the plant seems to have been built on another plan.

Q. Can you produce the Moses Lane plan?

A. No sir I cannot; I can only produce the quotations and statements I have seen as coming from that plan.

Q. Where did you find those?

A. In the evidence in some of these suits.

Q. You never saw the Moses Lane plan yourself?

A. No I never saw any plans purporting to be the Moses Lane plan or the McDonough plan.

Q. And you don't know what was in the Moses Lane plan?

A. Only from what these witnesses state that the plans contained.

Q. You think that it would be a comparatively easy matter to make calculations and allowances for pressure, &c. in this matter we have been talking about, yet I understand you to say that you couldn't make these calculations yourself?

A. Yes sir I regard it as only a simple matter of calculation and no doubt I could make them myself by advising myself properly on what was necessary.

Q. That is to say if you were trained in engineering you could do it?

A. Yes sir or by consulting an engineer who was capable in whom I had confidence, or perhaps by consulting the plan on which a successful water works plant had been constructed, I could reach a proper result.

Q. You have said that you have examined Dr. Coile's testimony where he sets out certain purchases of pipe and also William Wheeler's deposition relating to cast iron pipe used in the Lonsdale plant. Please look to pages 381 and 382 of Dr. Coile's deposition and see if he does not show therein 65 cars of pipe weighing 2204443 pounds as he says at $23.00 a ton, aggregating $25356.84?

2715

A. He sets out on pages 381 and 382 schedule of purchases of pipe which aggregate 65 cars, but his amount is different from the figures you read, being $24958.83.

Q. Now if you add freight to it, it will make the amount I have given you, won't it?

A. The items of freight shown on this statement aggregate $1333.32 which added to his net amount appears to give $25292.15.

Q. Now what was the total weight of the Lonsdale pipe reached by William Wheeler. Look at the head of page 86 and see if it does not show the weights are as theretofore given?

A. The heading is "Distribution pipes and appurtenances" including force main L-B as measured and determined by it, says, found to be some heavier than the K. W. standard, but estimated some of the pipe at $25.00 of 2000 pounds, and then recites the different sizes of pipe and the lengths and the price per foot.

Q. How many feet of 12 inch pipe on that page? 733065 feet?

A. Yes sir, $9774.02.

Q. And on page 37 it is shown to be 75 pounds to the foot?

A. Yes sir he uses 75 pounds to the foot.

Q. On page 86 Mr. Wheeler shows 10 inch to the amount of 5094.8 feet?

A. He does.

Q. And on page 38 he uses 56 pounds to the foot?

A. Yes sir.

Q. On page 88 he uses 3623.6 feet of 8 inch pipe weighing 43 pounds to the foot as shown on page 37, doesn't he?

A. Well this size and footage is shown, and this weight on the former page is also shown.

Q. And on page 86——

A. 17563.3 feet——

Q. —is shown 17563.3 feet of 6 inch pipe, and on page 37 he uses 30 pounds as the weight per foot of that pipe, doesnt, he?

2716 A. Yes sir.

Q. And on page 86 he uses 12659.1 feet of 4 inch pipe and on page 37 gives the weight at 20 pounds per foot?

A. He does.

Q. Now please add up the weights there of those five items and see what number of pounds the result is?

A. I don't think I have ever reduced that pipe to tonnage. Do you want me to do that now?

Q. I have figured it out myself, or it has been figured out Mr. Nixon with the following result, which I would like you to verify or correct?

A. ——.

Q. Assuming the total pounds of Lonsdale pipe as given by Mr. William Wheeler to be 1952459 pounds, and the total by Dr. Coile for the same to be 2204443 pounds, that shows a difference of 251984 pounds doesn't it William Wheeler's estimate being the smaller one?

A. That is the difference between the figures you have recited.

Q. If we assume the 1952459 pounds of pipe to have cost at Mr. Wheeler's price $25.00 a ton, it would have amounted to $24405.74, would it not?

A. I make the 1952459 pounds of pipe at $25.00 a ton $24405.74.

Q. Now that is less by over $900.00 than the amount Dr. Coile assigns to the same pipe at $23.00 a ton, including freight, isn't it?

A. This amount is $553.09 less than Dr. Coile's net amount of $24958.83.

2717 Q. Then although Mr. Wheeler has used $25.00 a ton for this pipe as against Dr. Coile's price of $23.00 a ton, Mr. Wheeler by using lighter weights has actually figured out a smaller price than was paid for it, has he not?

A. Yes sir if these figures are correct and there is not some other explanation for the difference.

Q. Well of course my question assumes the correctness of these figures. It follows then upon the assumption that these figures are correct that there is no substantial discrepancy between Dr. Coile and Mr. William Wheeler upon this point as to the price of pipe?

A. The Lonsdale purchases of pipe however were subject to considerable adjustment and deductions, so that I am not able to say that these prices as shown by Dr. Coile are the ones that the settlement was finally made upon.

Q. Well I don't know either, but they were put in the record by the City and I have assumed their correctness, and if they are correct there is no substantial variance between Dr. Coile's price and Mr. Wheeler's price for pipe, is there?

A. The first Lonsdale pipe purchases were at $25.00.

Q. Now Mr. Nixon I wish you would answer my question and then explain?

A. —which was afterwards corrected to $23.00 which may account for this apparent coming together of the amounts at very different prices.

Q. Ar-n't you willing now to answer my question without saying anything further about it?

A. Just so you don't get me tangled up in this pipe business, I am.

Q. Please read the witness the question. (Question repeated.)

A. If all these figures are correct and based on the same quantities and properly made, they appear to reach substantially
2718 the same result, but without figuring the transaction through, I could not subscribe now to the statement that this accord is reached entirely by reduced weights. There may be another explanation.

Q. The price of pipe per ton cuts very little figure in matters of this kind unless the weight per foot is known, doesn't it?

A. Yes sir it would be necessary to have the weight per foot or per length of pipe to reach correct conclusions in calculating the pipe.

Q. I find on page 80 of your deposition that you say "a good foreman is a more important requisite than an engineer," referring to the subject of laying pipe. Do you adhere to that statement now?

A. I stated that I wouldn't suppose much engineering would be required in pipe laying, and that a good foreman is a more important requisite than an engineer, and I still think so.

Q. Would you have your foreman design and lay out the sizes of the pipe to be laid?

A. That depends upon the character of the construction.

Q. I refer now, and you may take it that way hereafter unless otherwise specified, to construction here at Knoxville?

A. In an instance where there was a 12 inch pipe on a part of a street and it was necessary to extend it a half mile or mile, I should think a good practical foreman would be a more important requisite than a technical engineer even in Knoxville.

Q. Is there nothing in that kind of work that an engineer would have to do?

A. That depends upon the qualifications, experience and capacity to some extent of the foreman of the pipe force.

Q. If your foreman was a pretty good engineer, you wouldn't need any other engineer, I assume?

2719 A. No, I have had foremen that possessed natural engineering qualifications, and would not require another engineer.

Q. I presume however that you wouldn't hold this company to the duty of employing only foremen endowed with only natural qualities, would you?

A. In the case of this company I should think that the superintendent, who has generally been an engineer could do the little engineering required in the extension of a pipe line, and let the foreman of the pipe gang do the balance.

Q. Well now which do you consider the more important, the foreman, the superintendent or the engineer?

A. They are all important in their sphere; in case of a break in the pipe line, I believe the foreman would be the most important of all.

Q. Would you have your foreman draw plans for special castings, gates and hydrants and specify kind, weight and quality of the pipe?

A. No that is not usual; and then there is not very much trouble about that as there are standard sizes and patterns for that character of construction that is easily obtained. I don't think a blue print is necessary for every pipe or bend that is ordered.

Q. Would you have your foreman draft contracts, and on receipt of materials examine and determine whether or not they conformed to the requirements?

A. No, that work is more in line with the superintendent, though the foreman could compare the pipe with the specifications.

Q. Now in your first remark on this subject on page 80 of your deposition with reference to pipe laying you said, "that a good foreman was a more important requisite than an engineer, and in
2720 subsequent questions you have asserted that certain matters referred to were within the duties of the superintendent?

A. This was because you hadn't given me an opportunity to furnish my specifications for a foreman.

Q. Why do you bring in the superintendent at all; we were simply talking about the foreman and engineer?

A. I suggested the superintendent for drawing contracts or setting out specifications upon which pipe or kindred materials were ordered or purchased. I could design a foreman that would possess the qualifications that would enable him to do all these things as well as the engineering.

Q. To draw these contracts, and make the designs, and designate and specify special castings, gates and hydrants?

A. Oh yes there are foremen with all those things in their heads who can make orders for ordinary work without any special designs.

Q. Well Mr. Nixon you are testifying as an opinioned witness in this case; you couldn't do these things, could you?

A. If I couldn't I could come pretty near to it.

Q. I will ask you to state upon oath now if you are qualified to do these things that I have mentioned?

A. Yes sir with very little assistance, I could.

Q. I didn't ask you to say whether you could do it with assistance or not, but I asked you whether you could do it yourself?

A. Yes sir by qualifying myself, or posting myself to some extent, I could.

Q. And you think your ideal foreman could do it without qualifying himself?

A. Yes sir, if he was sufficiently ideal he could.

Q. Well I agree with you fully. If your foreman could do these things he would be an engineer, wouldn't he?

A. Well there are engineers and engineers. He might be
2721 a man of sufficient intelligence to do these things without being classed an engineer or being a member of the American Society of Engineers.

Q. If however he was sufficiently skilled to answer the purposes of your deposition he would be entitled to rank as an engineer, wouldn't he?

A. I don't think the Society would let him in without he had gone through a College, or something of that kind.

Q. You consider it proper to have plans in the construction of water works system, don't you?

A. Oh yes, that would be necessary.

Q. And that requires maps, plans——

A. —and specifications and drawings just as it does for any other plant or building or manufacturing institution.

Q. When pipes are laid, levels have to be taken and grades and lines established, don't they?

A. Yes sir, surveying is generally done before the pipes are laid or established.

Q. You have examined William Wheeler's deposition as I understand?

A. Yes sir. I have endeavored to give it considerable examination.

Q. And you find in his estimate of fair construction cost, sundry charges for engineering?

A. I find several estimates and charges for contractor's profit, interest on money and engineering in all of them.

Q. My question was simply for the engineering at present?

A. Well they are somewhat combined.

Q. Do I understand you to concede that some charge for engineering in the construction of a system like this at Knoxville, is proper?

A. I do.

2722 Q. And where would you place such a charge, under the head of Operating Expenses or Construction Account?

A. In original construction it would be a part of the Construction Account.

Q. Mr. Wheeler has so treated it, has he not?

A. As I translate his deposition and the other depositions in connection, it appears to have been in some instances included in both the construction and Operations.

Q. You are confusing Mr. Wheeler's estimate with the books, are you not. I am asking you now exclusively about Mr. Wheeler's estimate of fair Construction cost, and if he does not therein treat engineering as a Construction charge?

A. No, in my last answer I treated Mr. Wheeler's statements and those of the Treasurer somewhat connected, but in the naked construction the conditions are as you indicate.

Q. By naked construction, you mean Mr. Wheeler's estimate?

A. I mean Mr. Wheeler's estimate of construction alone without complication with anything else.

Q. The difference between you and Mr. Wheeler then as to this item is one of amount?

A. Largely so.

Q. Leaving the amount out of consideration, who in your opinion is better able to give a proper answer as to the worth or value of engineering work on water works systems, yourself who confessedly

has had very little to do with the building of water works, or one who has devoted his life time to it, not only as an engineer but as an employer of engineers as well?

A. I have never attempted to compare myself or my estimates with Mr. Wheeler, except on the practical conditions and pieces of work, construction and materials and things in this country which I know about and have handled as against his estimates based on other conditions and different facts. There are engineers that I would
2723 consider better qualified for the treatment of these subjects in this country than Mr. Wheeler, after investigating many of his estimates.

Q. You refer to your "practical experience" what was the total cost approximately of all the water works construction that you ever engaged in?

A. Oh a few thousand dollars.

Q. You refer to your knowledge of conditions here. Don't you know that Mr. Wheeler has supervised and conducted water works construction here in this city exceeding in amounts many times over all that you ever done here and elsewhere put together?

A. This is perhaps a fact, but the surprise to me is he has not learned more about it than to make some of the wild estimates that he has given in connection with the plant here.

Q. That might easily be acounted for by want of intelligence on on his part, couldn't it?

A. It might, or his want of investigation of details, or his failure to regard hard pan conditions that are encountered instead of using theories and hand book figures.

Q. You are here now in 1903 correcting Mr. Wheeler's statements of the cost of the work done 10 years ago, at which time I understand you were a grain merchant, is that correct?

A. Just as Mr. Wheeler is dealing with prices and work that occurred 10 years before he came to town.

Q. Conceding the validity of your retort, I ask you if the facts inquired about yourself are correct?

A. That I was a grain merchant?

Q. Yes sir 10 years ago?

A. No not 10 years ago, but I was a grain merchant when the water works was being originally built here; that is correct.

Q. Now Mr. Nixon you know from this record don't you that William Wheeler was supervising or conducting the water works construction by himself or in company with Mr. Parks al-
2724 most continuously from 1891 to 1902?

A. That is probably a fact.

Q. Don't you know it to be a fact from this record?

A. I think he has so stated in his qualifying statement.

Q. Do you deny that it is a fact?

A. Oh no I know nothing about it and assume it is correct.

Q. And you never did a foot of water works construction in Knoxville?

A. That is true also.

Q. Now who has had the more practical experience in Knoxville you or William Wheeler?

A. I expect there is not much difference on that score.

Q. Do you mean to say that you have done no work and have had as much practical experience as Mr. Wheeler in water works construction in Knoxville?

A. I mean to say that I have done none and Mr. Wheeler has simply figured on it.

Q. Don't you know that instead of simply figuring on it he had actual charge of water works construction from 1891 to 1902?

A. Well what is actual char-e but figuring on it?

Q. That he has been here at Knoxville and personally superintended it for a part of the time and supervised it through his assisttants the entire time?

A. I understand from this record that his work has all been in the line of supervision, that he has had superintendents to do the work and engineers to furnish the drawings, specifications, &c.

Q. What reason have you for not answering my question?

A. I think I have answered your question.

Q. I ask you if it is, or is not a fact that from 1891 to 1902 William Wheeler was engaged in conducting the construction of water works in Knoxville, Tennessee, being upon the ground himself part of the time and supervising said work through his assistants
2725 all the time?

A. I assume that this is more or less a fact. I see in the record he states these things, though I never saw him in Knoxville or elsewhere, and know nothing about it except what I see from the records in this case and of the company.

Q. You have never been a citizen of Knoxville?

A. No sir I never voted here.

Q. I ask you if you have ever been a citizen of Knoxville?

A. I have lived here at several different periods but never adopted Knoxville as my abode or claimed citizenship with this city.

Q. When, and how long did you live here?

A. I was here a great deal in 1887, 1888, 1889 and 1895.

Q. You were here as an officer of the United States Government at those dates?

A. Yes sir.

Q. Would your business have brought you in contact with William Wheeler if he had been here?

A. Not necessarily.

Q. Now Mr. Nixon who has had the larger water works experience here at Knoxville, you or William Wheeler?

A. Oh I should say Mr. Wheeler has had without question.

Q. Do you then seek to correct Mr. Wheeler's statement any further by reason of your practical experience as against his practical experience?

A. Oh yes there are a great many things that I wouldn't concede in his statements.

Q. But you must abandon the ground of practical experience as a reason of correction, mus-n't you?

A. Well that would depend.

Q. What would it depend upon, whether you wanted to do it or not?

A. Yes sir, and what subject was under discussion, and what particular work or job.

2726 Q. You have also referred frequently to your knowledge of local conditions. Do you undertake any longer to say that your knowledge of local conditions in the matter of water works construction and maintenance is superior to Mr. Wheeler's?

A. Yes sir it is in some things.

Q. In what things?

A. Well I should consider that my handling some dirt and digging a reservoir would be more valuable than his estimate of thirty odd thousand dollars here measured by the million gallons.

Q. Did you ever handle a shovelful of dirt in Knoxville?

A. I don't think I ever did and hope I will never have to.

Q. Now Mr. Nixon we can conclude and pass from this subject with your admission that Mr. Wheeler knows more about water works construction at Knoxville than you do by practical experience and his larger knowledge of actual local conditions than you have?

A. Yes sir you have my permission and agreement. From this record I see he can write books, and almost figure out the plan of salvation, and do a great many other things.

Q. Have you anything to add to your last answer?

A. No I don't recall anything at this time.

Q. Upon what ground do you reduce the prices that Mr. Wheeler has put into his estimate?

A. The most pertinent answer that occurs to me in this connection would be the fact that in the original construction which Mr. Wheeler estimates at $128000.00, his figures would make an allowance of some $6000.00 for engineering, when as a matter of fact the engineer was actually paid $1856.00.

Q. Do you understand then that Mr. Wheeler was following the books or making an estimate of what would be reasonable

2727 engineering expenses?

A. I understand that he was making up the largest estimate that he could of cost of this original construction, and used this amount of engineering to assist him in doing so.

Q. In that connection you were making up the lowest cost you could, wer-n't you?

A. No, I was making up the actual cost.

Q. The actual cost from the books or from what?

A. From all the information I could secure, books and otherwise.

Q. I ask you the question again if you did not deliberately make up the lowest cost you could?

A. No sir I made up, as near as I could, the actual cost.

Q. And yet you say Mr. Wheeler made up the largest one he could, is that correct?

A. No, I said that he made up a large one; whether it was the largest possible one or not I could not say.

Q. Please read the answer of the witness Mr. Stenographer?

The STENOGRAPHER: "I understand that he was making up the largest estimate that he could of cost of this original construction, and used this amount of engineering to assist him in doing so."

Q. Upon hearing your former answer read, you did say that Mr. Wheeler made up the largest, don't you?

A. Yes sir I say that he made up one large enough.

Q. Didn't you use the word "largest?"

A. Yes sir I used that word, but that might be too strong.

Q. What reason have you from this record in concluding that Mr. Wheeler is any less honest in his purposes than you are?

A. I have never impugned his honesty in the slightest
2728 degree and don't now, or his qualifications or capacity either.

Q. Then how can you justify the faults that you find with his estimates?

A. I think he has them too high and in many instances that they are excessive and not supported by facts and conditions current in this country.

Q. Don't you concede that Mr. Wheeler possesses larger and more accurate knowledge of facts and conditions as they exist in this country than you do—I mean with reference to water works conditions and maintenance?

A. From his deliverances in this record he is a gentleman of very great attainments, not only of this country, but many others.

Q. Please repeat the question to the witness?

(Question repeated.)

A. Not in all things.

Q. In what respects do you say that your qualifications are superior to his?

A. In deciding between his price of $18.00 to $25.00 per thousand for laying brick and the evidence of men like Getaz and Munding who have done the work from $8.00 to $12.00 and $13.00.

Q. How many men have testified as to these brick prices for the city aside from yourself?

A. Messrs. Getaz and Munding are all that I recall.

Q. You know that Getaz and Munding never did any water works construction, don't you?

A. I don't know that they did, but I know that there is not much difference between a brick wall used for water works and one used for something else.

Q. No difference between an ordinary brick wall and one laid to hold water and is watertight work?

A. That is carrying the comparison further than I made it.
2729 Q. It is not carrying it any further than it ought to be carried, is it?

A. Yes sir I would consider that Getaz and Munding could tell as much about the construction of a brick wall with cement whether it was to be used for water works or some other purpose, as a water works engineer expert.

Q. You place your endorsement of Getaz and Munding upon their practical experience, I believe?

A. Yes sir, and that they have done these things and accomplished these results and know what they are talking about when detailing instances of construction in this city which they have encountered.

Q. Do you think that it is always true that practical experience in regard to the particular work in hand is better than practical experience based upon larger and general observation?

A. Perhaps not in all cases, but as a general rule I would rather risk a practical, experienced man than a theorist or indulger in figures purely.

Q. You think it is a safe and sound rule always that a man who does a particular class of work here in Knoxville, or for that matter a particular piece of work, is better qualified to give expert testimony about it than one who has had a large general experience?

A. Yes sir I would rather risk Lawson Irwin, a colored contractor for digging a hole in Knoxville, than any engineer in New York or Boston.

Q. Now Mr. Nixon Mr. William Wheeler built these water works houses that have the brick in them, didn't he?

A. He had some of them built.

Q. Well would you apply the same reasoning to him that you do to Lawson Irwin in digging a hole?

A. Yes sir I would rather risk Messrs. Getaz and Munding on these houses than Mr. Wheeler for correct information as to their cost in Knoxville.

2730 Q. That however is not the logical result of the reasoning you have just been going through, is it?

A. I think it is.

Q. So you think that Getaz and Munding having general knowledge of building with brick in Knoxville are better qualified to testify about the cost of these particular houses than the man who built them?

A. Yes sir I think Getaz and Munding having built the Court House of Knox County, the Deaderick Building, the offices of the Southern Railway and other work of that character in Knoxville, would be better qualified to figure on the cost of construction of the filter house building, boiler house and engine house at the Pump Station than these gentlemen who figure by books and theories.

Q. Better qualified than the men who actually built the filter house, &c.?

A. Well if Getaz and Munding had built the filter house and Pump Station, being practical builders and mechanics, I should think that their estimates would be better than probably some other people.

Q. Who did build the filter house and Pump Station?

A. I don't know; Mr. Fulcher says I believe that he built a part of the original Pump Station, and I understand the additional construction was done by the company without any contracts, which was on the day labor basis except perhaps some of the painting.

Q. Who had charge of the original construction?

A. Do you mean the general charge or the immediate charge?

Q. Both?

A. I understand that Messrs. Wheeler & Parks had charge of the general construction or supervision and that they had local superintendents in immediate charge, one of whom was perhaps Mr. Kimball.

2731 Q. Building those houses was practical work wasn't it?

A. Yes, sir, to some extent.

Q. To what extent was it not practical?

A. Building them by supervision is not as practical as building them actually.

Q. Doesn't it require as much practical skill to build the filter station as it did to build the Deaderick Building?

A. Well, there is not much difference. The filter house is a very plain building and of very simple construction.

Q. Does building the Deaderick Building prove that Mr. Getaz was a practical man?

A. Well, I think the Court House is better evidence.

Q. Well, does the Court House prove that he was a practical man?

A. Yes, sir, it seems to be a good job.

Q. Does building the Pump Station and filter house prove that the man who built them was a practical man?

A. I expect there were some practical builders around that work; they indicate that there were.

Q. Don't you know that the man who, built the filter station is better able to testify as to what it cost than a man who did not built it?

A. That would depend.

Q. What would it depend upon?

A. It would depend upon how he built it, or how he proceeded to show the cost if he figured by the actual constituents of it—the actual construction and actual labor—he would probably produce a more practical result than if he figured it by cubical contents and feet of space and other theoretical plans that are sometimes indulged in by engineers. There is a good illustration of what I mean in this regard under the stand pipe at the filter station.

Q. You adopted practically the quantities in William Wheeler's estimate as to filter station didn't you?

A. Yes, sir, we found them approximately correct.

2732 Q. And your criticism of him ever being wanting in practical quality is based upon your judgment of the matter of prices, isn't it?

A. I haven't criticized him in that regard.

Q. Do you agree with him as to prices?

A. Yes, sir where he was right.

Q. And how far was he right?

A. I don't recall all the items.

Q. What is the difference between you and him as to the cost of the filter station?

A. I have made no statement of comparative cost. I made a state-

ment of comparative value as compared with new construction at the date in question.

Q. Before you made any replacement cost, you reduced Mr. William Wheeler's estimates on various items in the filter station, didn't you?

A. Yes, sir, I found excessive estimates around the filter station but I don't recall that any of them connected with the filter house about which you are asking.

Q. Do you agree with him now as to his price in his estimate of the filter house?

A. I don't recall any item where I differ with him seriously unless it was perhaps in the price he charged for brick work, earth, and earth excavation and some items of that character.

Q. How much difference did you make?

A. Well, at the filter station he charged 30 cents a yard for earth excavation and I figured this at 18 cents as a more practical and reasonable cost and one at which such work could be done. Where he charged $15.00, $18.00 and $25.00 for brick work, I found $8.00, $10.00, $12.00 and $15.00 more practical and usual and current prices than those he used.

2733 Q. Mr. Wheeler had all this work done under his own supervision, didn't he?

A. I suppose so, but I don't know that he attempts to claim that this work cost the prices at which he uses in his estimates, if he had I think he would have furnished the costs instead of the estimates.

Q. Don't you know that Mr. Wheeler says in his deposition that he made these estimates upon his practical knowledge of the prices of labor and material in the years to which the several items are assigned?

A. —and uses estimates instead of facts and costs.

Q. I wish you would look to page 118 of his deposition and see if he doesn't say "I have valued each part of the property under the classification to which I have testified, according to my best judgment of its fair construction cost, that judgment having been based upon experience and knowledge acquired in my connection with these works, and to some extent with other works the estimate having reference also to the time in which the particular portions of the plant were created or built?"

A. Yes, sir, there is such a paragraph on page 118, which sustains the contention that I have just announced, that he was making estimates and valuations, and not using costs of producing the plant from time to time.

Q. Doesn't he say that his judgment is based upon experience and knowledge acquired in connection with these works and to some extent with other works?

A. Yes, sir, and he also says that "it is not an estimate of what it would cost now to reproduce the plant, but what was the fair necessary cost of producing the plant from time to time," and that he was estimating it and valuing it rather than making a profert of its cost.

2734 Q. Your witnesses Getaz and Munding upon whom you rely are estimating according to their knowledge and experience on other work than this in Knoxville, are they not?

A. Yes, sir, similar work at the time and under the conditions that they took into consideration.

Q. Then if Mr. Wheeler is testifying in reference to this particular work which he did and your witnesses are testifying in regard to the other work, it is a fact is it not that Mr. Wheeler is the practical man and that you are now relying on the theories of Getaz and Munding?

A. No, sir, just the reverse—Getaz and Munding are the practical men and were testifying as to costs under the conditions and at the time in this city, while Mr. Wheeler says he was making estimates and valuations.

Q. Reverting to the matter of engineering. Do you place your judgment as to proper allowances for engineering against those of Messrs. Ludlow, Hyder and Johnson the expert witnesses who have testified in this case?

A. I don't recall the estimates they placed on this service, but as they are engineers, no doubt have a very high appreciation of engineering services, they would name a very full figure. I know that for a much larger work than this plant, that this service has been and can be secured for 2% to 3%.

Q. Please tell me what you include in engineering services in the construction of a plant like this?

A. Well these services in a plant like this would be somewhat mixed between architect and engineering services.

Q. Well, I want you to unmix them and state the engineering services?

A. The architect for instance would be——

Mr. CALDWELL: I am not asking about an architect. I object to that may it please the court. He may answer the question and then explain.

2735 COMMISSIONER: I think that is an explanation. He has already said they were mixed and that he couldn't unmix them.

A. The architect would design and superintend the buildings and the engineer would do the same with the other construction.

Q. Is an allowance for architect's work made anywhere in this record?

A. No, it appears to be included in the engineering.

Q. Now, then, Mr. Nixon, my purpose is to ascertain whether or not you know what should be included in the engineer's work—work and not money?

A. The formulation of plans, specifications, working drawings, sketches and calculations would, in the construction of a plant of this character come under the head of engineering in my judgment, which of course includes the architect's services therein.

Q. These are the things then that you have allowed your 3% engineering services for?

A. In what instance?

Q. Wherever you allow it?

A. I don't recall that I have made any allowance of this 3% or any per cent.

Q. Didn't you allow it in your replacement account?
A. In our cost of replacement of the plant entire we included an allowance of 3% for engineering and architect's services.
Q. And you made that allowance upon the items of engineering services that you have specified above?
A. Yes, sir, in our statement of the cost of replacement, we allowed for engineering services 3% is my recollection.
Q. My question was whether or not you allowed that per
2736 cent. as properly chargeable on account of the items you have mentioned above as constituting engineer's services?
A. Yes, sir.
Q. And you include nothing else than those things as engineering services?
A. Yes, sir, I regarded these engineering services to include supervision.
Q. And what else?
A. Nothing else that I recall. We made other allowances for other things.
Q. Do you know the nature of William Wheeler's engineering services to this company?
A. No, sir, only from what I see from the records and as disclosed by the books and bills that he has rendered against the company and the services for which he has been paid.
Q. Now with regard to charging certain engineering items to operating expenses would you or would you not agree that that would depend entirely upon the nature of those services?
A. Yes, sir, I would agree to that.
Q. Do you know the difference between the work of a supervising engineer and a consulting engineer and a constructing engineer?
A. I think I have some idea of those distinctions, but would not undertake to define them according to professional ethics along this line.
Q. Then as I understand you don't know accurately the duties that pertain to these various classes of engineers as indicated by their qualifying titles?
A. No, sir, there is a great deal of hum-bug in those titles.
Q. How do you know there is?
A. I have encountered some of it.
Q. What hum-bug do you encounter in this record?
A. I think there is some in this case.
Q. Well, I ask you to specify what it is?
2737 A. Such for instance as a charge of $400.00 or $500.00 for plans and making up records of pumpage or some simple construction at the pump station or filter station, which is found in this case in some instances.
Q. Now in order to get the full force of your statement, I will ask you to define what you mean by "hum-bug"?
A. I mean high sounding terms such as you have delivered in a previous question, and unnecessary or useless services or advice.
Q. Do you mean that false charges have been made?
A. No sir I didn't make such statement.

Q. Well do you mean that now?

A. No sir. I mean that some of this very high sounding engineering has been very expensive.

Q. Do you mean that the company did not pay this money?

A. Oh I have no doubt but that they paid it.

Q. You say it was improperly paid?

A. That would be a matter of judgment. I wouldn't have paid it if I had been running the company.

Q. You don't know enough about engineering to know whether the charges were proper or not, do you?

A. I think I know enough about engineering to know that I wouldn't have paid such charges?

Q. You use the word "hum-bug" Mr. Nixon I assume as a manifestation of your ill-will to this company?

A. Oh no I have no ill-will toward this company. I used the term in describing certain character of high sounding engineering titles which you have recited.

Q. Do you consider such language becoming a witness testifying under his oath?

A. Yes sir, I have never heard that "hum-bug" was a bad word; it is not profane.

Q. And you desire it to remain in your deposition, do you?

A. I have no objection to its remaining. It seems that it is
2738 a tame word although it may not be as strictly polite as some other term.

Q. You have undertaken to transfer from operating expenses to construction accounts as they stand on the books certain charges for William Wheeler's salary as supervising engineer. Now would you say that these are not proper operating charges when the terms whereby he was appointed and also the understanding of the directors of the various companies for whom he acts in this capacity defined his duties to be so to promote and systematize the affairs and methods of operating and managing the works and property as to properly secure the largest possible revenue with the lowest possible expense, and at the same time maintain the property of the company in the highest possible degree of efficiency?

A. I consider that this was a very expensive luxury for this company to indulge in as an expense of operation, and for that reason thought it was proper to eliminate it.

Q. Did you eliminate it?

A. I eliminated part of it in my report of proper operating expenses for the years that I investigated.

Q. Why didn't you eliminate it all?

A. Because during part of the time there was some construction work, and in that case I allowed part of it to remain.

Q. For what years did you allow part of it to remain?

A. I would have to refer to the statement.

Q. As I understand you generally, you allowed it to remain for the years when construction work was done?

A. Yes sir when the construction work was of sufficient importance to warrant an expenditure of that character, it is my recollection that I allowed a part of it to remain.

Q. Where no construction work was done, would you allow
2739 any part of the salary of the supervising engineer?

A. When the plant was simply running or being operated without construction being made or contemplated, I should regard a supervising engineer on a regular salary as an unnecessary expense and not a legitimate operating expense, particularly in a case where the superintendent was an engineer, as in the instance of this company.

Q. What kind of an expense would it be?

A. I should regard it as an unnecessary luxury.

Q. Well what would you do with it, cut it out entirely?

A. Yes sir I think good management would dispense with such service until it was required.

Q. Who is to decide a question of that Kind Mr. Nixon, whether a supervising engineer is to be employed or not?

A. That would depend upon conditions. In a case of this sort where you were endeavoring to ascertain the fair and reasonable, proper and practical expenses of operation, the question is of easy decision. If the President of the Company was Supervising Engineer and wanted a salary for that service, and sufficiently in control of the company to obtain it, I suppose it would be legitimate for him to do so—at least legitimate from his point of view.

Q. That is to say in this case you would decide it?

A. Yes sir in the case of the income and operating expenses I have made up, I made a report of my conclusions in such matters, which are to be taken for what they are worth.

Q. You intimate then that Mr. William Wheeler, by reason of his influence or control of this company, has had this salary voted to him when it was unnecessary?

A. From the long question that you propounded a few minutes ago, this assumption would be fair.

Q. Well do you make the assumption?

A. No I have endeavored to recite the conditions as I un-
2740 derstood them.

Q. Mr. William Wheeler controls this company does he?

A. I understand so.

Q. From where do you get your understanding, from Getaz or Munding?

A. From what I see in this record and the investigation of this case.

Q. What do you find in this record to support the statement that Mr. Wheeler controls this company?

A. It appears to me that reading his deposition is sufficiently conclusive on that point that he is the boss of the institution.

Q. Does he say in his deposition that he controls it?

A. I don't recall that he uses that language.

Q. Your statement is merely a part of your readiness to make assumptions against this company isn't it?

A. No sir and I shouldn't regard that assumption would be against this company, as Mr. Wheeler appears to be a very smart man.

Q. Do you know how much stock William Wheeler owns in this company?

A. I do not recall that it is disclosed.

Q. Well why do you assume then that he controls this company and has this unnecessary salary voted to himself?

A. He is the president of the company and in charge of the same, and presidents of companies, or corporation presidents are generally able to control them.

Q. Would the mere fact that he is a minority stockholder in the company make any difference in your opinion?

A. No, not if he was able to control the company, which might be done and still be a minority stockholder—he might be a majority bondholder.

Q. And you still say that he controls the company?

A. I say that this record made that impression upon me.

2741 Q. Coming to the Treasurer's salary, you assign one half to operating expenses and one-half to construction where they were charged to operation on the books in full. What work does the Treasurer do that in any way relates to the construction of the plant?

A. I should assume that he did as much work in the construction as he would in the operation of the plant—paid as many bills for one purpose as for the other, and handled perhaps as much funds for one purpose as the other.

Q. Suppose there was no construction in one of those years when you refuse to allow the supervising engineer a salary when there was no construction, would you still charge one-half of the Treasurer's salary to construction in that year?

A. No sir if there was no construction I wouldn't.

Q. Well why wouldn't you make the same kind of a division in his salary as you did in the engineer's salary?

A. Because the Treasurer might be necessary, or there might be some excuse for an additional Treasurer and there wouldn't be for a supervising engineer when there was no construction being done or contemplated.

Q. You decline to allow the supervising engineer a salary to go to operation when there wasn't construction. You say that the Treasurer's services have as much to do with operation as construction and therefore you divide his salary equally, and allow the supervising engineer no salary for construction when there is no construction, you still allow the Treasurer's salary to continue when there is no construction despite the fact that it has as much to do with construction as operation, is that correct?

A. It would not be possible to dispense with the entire salary of the Treasurer and therefore it might be necessary to maintain this expense as an operating expense when there was no construction, it

2742 would not be necessary to maintain this expense of the supervising engineer when there was no use for his services to be paid out of operating expenses.

Q. Do you mean that as your answer to my last question?

A. I think that answers the question; I intended that it should do so.

Q. Do you know of any instance in railroad, water works or other public service corporations where the salaries of the general officers such as President, Secretary and Treasurer are charged to any other account than salaries, administration expenses?

A. That would depend entirely upon what kind of a corporation it was and what kind of a business it was doing.

Q. I don't ask for that kind of information; I ask if you know of any instance of the kind I indicate?

A. Yes sir there are instances of that sort in manufacturing corporations.

Q. Do you know of them personally?

A. Yes sir I have belonged to manufacturing corporations where no salaries were allowed the officers during certain periods.

Q. I asked you if you knew of any instances where the salaries of the general officers, such as the President, Secretary and Treasurer were charged to any other account than that of administration salaries and not whether you belonged to a corporation which allowed no salaries at a certain time?

A. I am not able to give you definite instances but there are conditions to which the expense of these salaries could be apportioned to definite purposes without carrying them in operating expense account, and no doubt this is done.

Q. You say this could be apportioned and no doubt it is done?

A. Yes sir.

Q. Now I didn't ask you whether it was apportioned, I asked you whether it had been done or not?

2743 A. Well I answered that part of your questio

Q. For what years have you divided the Treasurer's salary between operation and construction?

A. For the year 1899-1900, and I appear to have deducted one-half of the supervising engineer's salary, $377.88 and one-half of the Treasurer's salary, $616.01 from operating expenses, as the construction for that year amounted to $36000.00, and I thought that the other one-half of these salaries should be charged to construction. For the year 1900-1901 I appear to have deducted $500.00 more of Mr. Kimball's salary, one-half of the salary of the supervising engineer and one-half of the salary of the Treasurer, the construction amounting that year as shown by Volume 1 page 106, to $79233.55. For the year 1901-1902, I appear to have deducted one-half the salary of Mr. Kimball, the superintendent, one-half of the salary of the supervising engineer and one-half of the salary of the Treasurer, as the allowance on construction that year for profit, interest and engineering would amount to $9673.50. That is as far as I went. I only reported on three years.

Q. Continuing in regard to the Treasurer's salary, you carry one-half his salary from operation to construction in 1899-1900 because there was $36000.00 of construction?

A. Yes sir that seems to be the statement.

Q. In 1900-1901 you carry one-half the Treasurer's salary from operation to construction because there was $79000.00 of construction in that year?

A. Yes sir.

Q. In 1901-1902 you carry one half of the Treasurer's salary from operation to construction because there was $9600.00 worth of construction done that year?

A. No I stated that in the latter year that 20% on the construction would have amounted to $9673.50.

2744 Q. Well what would the construction have amounted to then?

A. Well about six times this amount.

Q. So that without regard to the particular amount of construction work you have carried one-half of these amounts from operation to construction in each of these years?

A. Yes sir, this construction was shown as being of sufficient importance to justify the readjustment of these expenses so as to put one-half of it on construction.

Q. If $36000.00 of construction in one justified you in transferring one-half the account how do you reason it out that $79000.00 of construction the next year authorized you to transfer only the same amount of the salary?

A. I let one-half of these expenses stay on operating expenses and showed the extent of this construction to sustain the soundness of the transfer of one-half of these salaries to construction account, leaving only the remaining one-half to be carried by the operating expenses.

Q. Why do you require the same amount of salary transfer on account of $36000.00 of construction that you do on $79000.00 of construction?

A. Perhaps the theory that you advance would justify the carrying of these entire salaries to construction account when the amount of construction is double that of the previous year, but as before stated it was conceded that a part of this expense was properly carried as an operating expense, and therefore the divisions were made as stated cutting this expense in half.

Q. Don't you think the theory that I have advanced is the correct one?

A. No sir not in the case of the Treasurer, because a part of his duties would necessarily be connected with the expense of operation. Your theory might be correct regarding the salary of the supervising engineer.

2745 Q. And the superintendent also?

A. And the superintendent or local engineer, but this wasn't done.

Q. Well don't you think it ought to have been done?

A. Well it could have been done and would have made a further reduction of operating expenses, but it is considered more conservative and sound to proceed upon the theory that was adopted.

Q. Was conservatism the only reason that suggested the allowing of a part of the salary to remain in operating account?

A. Conservatism would be a good reason.

Q. Could you indicate any other point in your deposition where conservatism appears?

A. I can see it bristling all through the deposition.

Q. Now Mr. Nixon, suppose in any one year there had been no construction at all, you have said I believe that under those conditions the company would not be authorized to pay the salary of a supervising engineer. Would they be authorized to keep a Treasurer and pay his salary?

Mr. PICKLE: We object to that as the testimony shows there is no such year.

Over-ruled. Exception taken.

A. I suppose they would have to retain the Treasurer.

Q. And pay his salary?

A. And pay his salary, and not fire him because they were not doing any construction work.

Q. Upon what ground do you undertake to revise the judgment of the officers and directors of this company and determine that charges already made and allowed upon the books, apportioning the superintendent's salary between operation and construction should be changed. Do you think that you are better qualified to determine what should go to operation and what to construction than the officers of the company?

2746 A. I was proceeding upon the theory of what I regarded as proper and was justified by the conditions in making up a compilation of proper charges to be carried by the operating expense account, and without regard to revising the action of the officers of the company in making their distributions, as I was not advised as to the result that they desired to reach in their distributions.

Q. Don't you think that the officials of the company are more familiar with the relative value of Mr. Kimball's services as between construction and operation than you are?

A. No doubt they are, but at the same time they may have desired to run one account up and hold the other down, or take any such action or reach any such result as they desired. When I found construction to a very large amount being done in a given year to which the attention and services of these officers were in a greater or less proportion devoted, it appeared fair that the expenses should be correspondingly and proportionately divided.

Q. Did you understand, when you came to the examination of operating expenses from 1899 to 1902, that it was highly important for the defendant in this case to have the operating expenses cut down?

A. I could have taken that view of it, but was guided more by making a report of what was proper in the matter, and based upon sound reasoning.

Q. Is this division of these salaries between these accounts your own unaided conclusion?

A. Not entirely; I have endeavored to inform myself on this as on many other subjects embraced in this investigation by a conference with others and eliciting such information and assistance as I could secure.

Q. What information upon the subject of the division of
2747 these three salaries did you elicit, and from whom did you elicit it?

A. I cannot recall an expression from anyone in this regard as a suggestion, but may have announced my theory and had it coincided by others with whom I may have discussed the subject.

Q. What others?

A. Oh, any person that I may have thought was qualified to know about such things and with whom I may have discussed the subject.

Q. Can you give the names?

A. I cannot recall any particular name at this time. I remember expressing myself to counsel for the city as to my conclusions in that regard, but I don't recall any suggestions from anyone.

Q. Would you wish then to modify the statement that you made this division in any part for the reason that you had elicited information from others?

A. No, I gave this subject considerable study and what investigation I could.

Q. Then are you willing to allow it to remain upon the record as your own unaided judgment?

A. Just the same as I am on a good many other things in connection with this case where I have sought information.

Q. Isn't it a fact that in selecting the amount or portion of each of these salaries that was to be carried from operation to construction, your action was purely arbitrary so far as the amount was concerned, or if you say it was not arbitrary, state the reasons why you made the same division of the salaries in three different years when the construction divisions were diverse?

A. I first eliminated the salary of the supervising engineer entirely, and I think probably three fourths of the superintendent's salary from operating expenses, but after further consideration of the subject I adopted the other plan of dividing all three of the salaries, and proceeded on that basis and did not attempt to
2748 apportion the salaries, or a division of the salaries upon the absolute cost of construction, but in these years, when there was important construction and requiring fully one-half or more of the services of these officials in line with this construction, it seemed fair and sound to make this division.

Q. Suppose there had been ten thousand dollars of construction in each year of those years, how much salary would you have carried from operating to construction account?

A. Well I hav'n't encountered that yet and had such case under consideration, and don't know just now what portion I would have carried, and these three years having been already made up, I am content to let them stay the way I have them.

Q. I ask you the hypothetical question, if the construction had amounted to $10000.00 in each one of those years, how much salary would you have carried from operation to construction account?

A. I expect the fairest way under such a condition would have been to have disposed with the salary of the supervising engineer,

divide the superintendent and Treasurer's salary in smaller proportions than when the construction was so much greater by three to eight times.

Q. Suppose the construction had been $100000.00 for each of those years, how would you have divided these salaries?

A. I don't know that I would have made any different division, but might have increased the proportion to construction and reduced the proportion to operating expenses to conform to these conditions.

Q. On pages 81 and 82 of your deposition you state that for the year 1899-1900, $1250.00 of Mr. Kimball's salary was charged as an operating expense and the balance of $750.00 to construction account. Now will you show me from the books your de-
2749 termination of these amounts?

A. The salary account for the year 1899 appears to be made up of wages from weekly pay-rolls $2412.24.

Salary of C. T. Cates, attorney	1000.00
" " William Wheeler	1105.76

Q. Is it necessary to give that in answering my question?

A. Yes sir.

Salary of E. Wheeler	$1232.02
" " F. C. Kimball, part	1250.00
" " C. B. Bowen	9.00
" " L.-B. Co. officers	319.33
Total	$7328.35

and from this statement, a credit of Mr. Kimball's salary of part of $1250.00, I made by statement and did not hunt for the remainder, stating that the balance of $750.00, I think it is, is charged to construction account.

Q. Do you still say that?

A. I don't know; I don't recall whether I looked up that balance or not; it might have been a less amount. The important part of the answer is that $1250.00 part of the salary was charged to operating expense and the balance to construction; his salary if $2000.00 it would have been $750.00, and if it was $2500.00 it would have been $1250.00.

Q. Well don't you think it was important to state all the facts correctly?

A. I say I think the balance of his salary anyhow was charged to construction, as I wasn't making up the construction, but it was the operating expense account I was making up and upon which I was securing the dollars and cents, and not making up the construction account the amount of this balance was not ma-
2750 terial.

Q. Now look to Journal 99-X and see if that does not show $1199.99 of Mr. Kimball's bills charged to salary account for this year?

A. Yes sir there is a charge to that effect, and if I recall there is

another charge of $51.01 somewhere else that makes up the $1250.00.

Q. Now look to the bill of William Wheeler's items just above the one you have last examined and see if there is not in it and also charged to salary account another item "F. C. K. services, board, &c., $300.00"?

A. Yes sir there is a $300.00 charge and $1105.76 credited to William Wheeler.

Q. My question is if there is not a $300.00 item in that of Mr. Kimball's charged to salary account?

A. Yes sir there is a charge for board for F. C. K., April and May $300.00.

Q. Is it for board only?

A. I don't know.

Q. What does it say there?

A. It says "board F. C. K. April and May $300.00."

Q. What is that in?

A. In salary account to William Wheeler. William Wheeler gets the credit and salary account is charged.

Q. Read the whole entry referring to that $300.00 item, if you please?

A. "Salary account to sundries William Wheeler by bill for serv. F. C. K. April ——; by bill serv. F. C. K. May —— board for F. C. K. April and May, $300.00."

Q. Now don't that show $300.00 of Mr. Kimball's account charged to salary account there?

A. It shows this board item of $300.00 charged to salary account.

Q. Do you say that whole amount is a board item?

A. Well that is the way it reads.

2751 Q. Isn't it for board and services both?

A. Well there is no amount given for services.

Q. And you translate that entry as meaning that the $300.00 is entirely for board for Mr. Kimball?

A. That is the way it reads. It might be translated some other way or construed some other way.

Q. I ask you as an expert book-keeper to say what it means as it stands there on the book?

A. As an expert book-keeper I would say it means just what it says, but whether it says what it means or not I don't know.

Q. As a matter of proper book-keeping, what does it mean?

A. If it should mean that part of it was for services and part of it was for board, the entry should have said so and have stated the amounts.

Q. Well I ask you upon your knowledge of book-keeping and your oath as a witness what that means as it stands written on the books now?

A. Well from my knowledge outside of a book-keeper, as $300.00 would be a pretty high rate of board in this country for two months board, I could arrive at a different meaning from what the book says.

Q. Well I ask you to state what it means and also ask you to state whether or not you are purposely evading an answer to the question?

A. No sir I am giving you just what the book says without attempting to translate the meaning of the entry.

Q. Will you swear that you are not purposely evading an answer to my question?

A. No, I could fairly assume that the entry crediting Mr. William Wheeler covered services as well as board, as $300.00 for two months board would be an unreasonable amount.

Q. Now that don't answer my last question. Do I under-
2752 stand that you intend to answer it. The question is will you swear that you are not purposely evading an answer to my question?

A. No I think my last answer covers the ground.

Q. What do the first two lines referring to this $300.00 entry there mean?

A. They say "part bill for services F. C. K. April —, ditto May — without giving any figures or amounts.

Q. Then the third line follows completing the entry?

A. Well no other entry on that page is that way.

Q. I didn't ask you about any other entry on that page. I asked you if that was so about that entry?

A. No there are several other lines completing the entry.

Q. Of the $300.00 item?

A. Yes sir, board for F. C. K. April and May $300.00, salary for superintendent and engineer $170.14, salary of superintendent and engineer $176.26, salary of superintendent and engineer $183.39, salary of superintendent and engineer $225.97, salary for Sec'y, 1898-9, $50.00, the total having been scratched it seems and this $50.00 inserted.

Q. Now Mr. Nixon when you read the items following the $300.00 item you knew that I wasn't asking you about them?

A. Well they say "salary."

Q. Well I ask you if you didn't know I wasn't asking about them?

A. No, sir you asked me what completed the entry.

Q. Now I will ask you to read the complete entry about the $300.00 and say if it is not made up of the two lines referring to services and one line referring to board account?

A. Well it could be construed that way but it is of itself an independent and separate line.

Q. Now look on page J-100-A of the book and see if there
2753 is not another salary account of Frank Kimball aggregating $50.01?

A. Yes sir there is such a credit.

Q. Now don't that $1199.99. and the $300.00 and the $50.01 make a total of $1550.00 charged to Mr. Kimball as salary account in the year 1899-1900?

A. Well the charge of salary of $1199.99 on 99-X of the book and the charge of $50.01 on page J-100-A makes $1250.00 of Mr. Kimball's salary charged to operating expenses for that year. The

$300.00 item about which you inquire is included in a credit to Mr. William Wheeler with other credits.

Q. For whose services and board was it paid?

A. It seems to be Mr. Kimball's but it is credited to Mr. Wheeler and does not figure in the $1250.00.

Q. But it would figure in the $1550.00 made up of that and two other items, don't it?

A. Well it could be made to figure that way but there are three or four other items of Mr. Kimball's services that are credited to Mr. Wheeler and are charged in the salary account to Mr. Wheeler.

Q. Now on page 98-X of the Journal are there not items under construction aggregating $416.66 taken from F. C. K.'s salary bill?

A. Yes sir on page 98-Y there is a charge of construction account to sundries a part of bill of salary Frank C. Kimball $416.66.

Q. Now on page 98-X under William Wheeler's bill is there not an item for services and board F. C. K. $124.00?

A. Yes sir.

Q. Then don't those two items make a total of $540.66 of Mr. Kimball's salary charged to construction in that year?

A. I suppose they would.

Adjourned until 9:00 — Wednesday morning November 4th, 1903.

2754 WEDNESDAY MORNING,
November 4th, 1903—9:00 o'clock a. m.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

Q. Mr. Nixon have you found the depositions which you referred to yesterday in your statements in regard to the difference between the Moses Lane and McDonough plans?

A. No sir I neglected to take those papers along with me last night; I forgot them. I will search out that information and give it to you, but I made the calculations on the Lonsdale pipe which you requested me to compare.

Q. Did they agree with the figures I gave you?

A. No they do not; I found a discrepancy of 3500 feet of 12 inch pipe in the matter.

Q. Which way?

A. Which is to be added to the pipe you gave me for the Lonsdale plant, and when added it makes Mr. Wheeler's charges for weight 10516 pounds in excess of the weight shown by Dr Coile as purchased, and at Mr. Wheeler's charges on a footage basis for the same pipe aggregates, after allowing for laying $29890.95 where Dr. Coile's purchase of pipe at $23.00 a ton would aggregate, including freight $25351.09, or an excess in Mr. Wheeler's charges of $4539.86 on that item. There is also some mixture of the 4 and 6 inch pipe, but I am unable to follow it through from the light of Mr. Kimball's deposition giving its disposition when taken up, &c., which might increase this excess or charge.

Q. You say that you found how much 12 inch pipe to be added to Mr. Wheeler's statement?

A. 3500 feet of 12 inch pipe in the gravity line that was included in Mr. Coile's statement with which Mr. Wheeler's was compared to reach the correct comparison necessary to have this pipe in both statements.

Q. Can you indicate where this 3500 feet of 12 inch pipe was laid?

A. It appears to have been laid in the gravity line. It is explained on page 168 Volume "3" of Mr. Kimball or Mr.
2755 Wheeler's deposition, one or the other.

Q. Where do you find any reference to this 3500 feet in Mr. Coile's deposition?

A. I don't recall whether he discusses or points out this pipe or not, but it is very thoroughly pointed out in the record. Mr. Wheeler and Mr. Kimball both discuss it and show about its being taken up, &c., and it is conclusively shown that it is not included in this statement for the 12 inch line included here in this statement is the line from West Knoxville to the Lonsdale standpipe which he says is 9775 feet long, and the 12 inch contained in this statement is 9774.2 which is substantially the same length of 12 inch pipe.

Q. The point I ask you about is how do you know it is included in Dr. Coile's statement?

A. Because Dr. Coile's statement includes all purchases from the Chattanooga Foundry and Pipe Works as shown by the lien that was filed in the original construction.

Q. Don't you remember that Dr. Coile says there was pipe furnished by the South Pittsburg Pipe Company that is not embraced in his statement?

A. Yes sir I looked into that. That is another size of pipe. I saw a statement of it. That is 6 inch pipe from South Pittsburg.

Q. Did you get it from this record or from somebody on the outside?

A. I cannot recall exactly—from this record or some other record. I remember I worked on this matter pretty thoroughly in order to make comparisons and wasn't able to do it, but I recall very clearly that the South Pittsburg pipe was 6 inch pipe.

Q. Even conceding that it was 6 inch pipe, that don't support the statement that Dr. Coile's evidence shows all the pipe that was bought?

A. From the Chattanooga Foundry and Pipe Works, it does.
2756 Q. Well I understand, but it don't show all the pipe that was bought from everybody does it?

A. No sir, he states there were two car loads bought from South Pittsburg.

Q. How much do you say Mr. Wheeler's excess in weight is over Dr. Coile?

A. On this comparison it is 10516 pounds, using the footage prices that he uses on page 37 as applicable to other pipe.

Q. How much would these two car loads of pipe from South Pittsburg weigh?

A. Well that is somewhat variable. They might run from 30000 to 60000 pounds each.

Q. Well that would very much over balance this difference of 10000 pounds that you have been referring to, wouldn't it?

A. No, Dr. Coile doesn't include that in his comparison.

Q. Well I know he doesn't, and when you are adding this 3500 feet to Mr. Wheeler's estimate, wasn't it fair to add this two car loads to Dr. Coile?

A. No, for this statement shows that this 3500 feet is not included.

Q. Well don't Dr. Coile swear that the two car loads was not included in his statement?

A. Yes sir that is true—in my comparisons I have added it heretofore in addition.

Q. Then the result of your comparison is to make Mr. Coile's weight of pipe considerably greater than Mr. Wheeler's?

A. No sir, Mr. Wheeler's is the greatest after you add this 3500 feet to his weight.

Q. And after you addd the two car loads to Dr. Coile?

A. No sir I hav-n't added that to Dr. Coile.

Q. Well what are you going to do with this two carloads of pipe; are you going to leave it out entirely?

A. No sir in my comparisons I have added or allowed for
2757 the pipe from South Pittsburg, but in this instance I simply take Mr. Wheeler's figures as given and add thereto the 3500 feet that is conclusively apparent as omitted—all the 12 inch pipe in the list being accounted for in the main from West Knoxville to the standpipe as shown by Mr. Kimball.

Q. But in this estimate you are making this morning you don't include the two car loads of pipe that the Lonsdale company got at South Pittsburg?

A. No I hav-n't accounted for that or attempted to make a different comparison from the one proposed yesterday of Mr. Wheeler's figures except to add the 3500 feet of 12 inch pipe that was not included.

Q. Well I am unable to see why you didn't take into consideration these two car loads that weigh so much more than that 3500 pounds?

A. I did not do so because it was not included in your comparison of yesterday which you submitted.

Q. You didn't want to do so did you?

A. No I paid no attention to it as I was proceeding on a comparison that you proposed.

Q. What comparison did I propose to you?

A. You proposed a comparison of the footage of pipe reported by Mr. Wheeler on page 86 and computed at so many pounds per foot as applied to other pipe on page 37, and thus reached an aggregate of 1952459 pounds which you compared with the aggregate weight of 65 cars of pipe shown by Dr. Coile on page 382 at 2204443 pounds and attempted to reach the conclusion that the difference in weight per foot would make up the difference of $2.00 per ton in price.

Q. And you found that I had omitted 3500 feet of pipe that ought to have gone into Mr. Wheeler's statement, and that there were two

car loads that ought to have been added to Dr. Coile's weights
2758 and you gave account this morning of the 3500 feet against the water company and made no reference to the two car loads against Dr. Coile, did you?

A. No I simply called attention to the discrepancy in the comparison and conclusions reached caused by your omission of the 3500 feet of 12 inch pipe. I did not attempt to carry the comparison further, as before stated this would be a difficult proposition without more explanation of the 4 and 6 inch pipe that is discussed by Mr. Kimball in his deposition. I am unable to determine whether the pipe referred to by him there is included in this statement of lengths of pipe submitted yesterday or not.

Q. In answer to a question on page 82 of your deposition you state that while engineering on the pipe line alone plays a part in swelling these estimates to an extent of over $13000.00, you have found during the period that you have been permitted to investigate a little over $2000.00 charged to construction. In the following question dealing with the total of over $32000.00 entering into engineering in the estimates you state that less than $2000.00 of engineering has been assigned to construction account so far as you have been able to examine the accounts. Which of these statements do you adhere to now, that the amount is over $2000.00 or under $2000.00, that has been charged to construction?

A. It appears to have been under $2000.00 if it was $1750.00, as $1750.00 is under $2000.00.

Q. Do you say now it was $1750.00?

A. It seems that I stated previously that it was $1725.00.

Q. Where did you state that?

A. In a previous answer on page 82.

Q. Indicate which answer that appears in? I do not find it?

A. In the upper part of the page about the third paragraph
2759 from the top, for the year 1902, $1750.00 of Mr. Kimball's salary is charged to construction account——

Q. What has that to do with my question as to the amount of engineering that has been assigned to construction. That is what I am asking about?

A. It appears that I was asked questions to ascertain how much of the salaries of employés of the company during the term that I investigated had been charged to construction account, and that I had replied giving the amount of Mr. Kimball's salary that had been charged to that account.

Q. That part of Mr. Kimball's salary that had been charged to construction?

A. To construction.

Q. Well you say that $275.00 of that had been charged to construction?

A. For the year 1901-1902 it appears that proportion of his salary had been charged to construction and the remainder to operating expenses.

Q. Well that is not what I have been asking about at all. What I asked is this: In answer to the third question from the bottom on

page 82 of your deposition you say, "yes sir" to a question containing the following clause: "The engineer and his assistant with the exception of a little over $2000.00 during the period you have been permitted to investigate, have been paid out of operating expenses; is that a fact." Having answered "yes" to that question the next question is "and while the engineering has swelled the total of these estimates over $32000.00, you have found, so far as you have been able to examine the account, that less than $2000.00 of the engineering has been assigned to construction account and the balance paid out as operating expenses" to which you answer "that is true." Now my recent questions have been to ascertain whether it was more then $2000.00 or less than $2000.00 of this engineering item that has been assigned to construction during the period you have investigated?

2760 A. As before stated, my investigations had been of the operating expenses and not the construction, and I had endeavored to find the amount charged to operating expenses, but did not follow the charges for construction. I find that in the year 1899-1900, $1250.00 of Mr. Kimball's salary had been charged to operating expenses, and I assumed that his salary was $2000.00 and therefore that the balance to construction would be $750.00, but I know that Mr. Elbert Wheeler states on page 67 that $540.66 of Mr. Kimball's salary was charged to construction in that year. For the year 1900-1901 I find $1500.00 of Mr. Kimball's salary charged to operating expenses and assuming that his salary was $2000.00, would leave $500.00 going to construction account. This is sustained by Mr. Elbert Wheeler on page 67 where he says $1500.00 of Mr. Kimball's salary was charged to operating expenses and $500.00 to construction account. For the year 1901-2 I found $1725.00 of Mr. Kimball's salary charged to operating expenses and assumed that if his salary was $2000.00 that the balance would be charged to construction, but if his salary was $2400.00 the amount charged to construction would be $675.00,—the exact amount I did not endeavor to ascertain. Mr. Elbert Wheeler says on page 67 that for the years 1901, 1902 all of the salaries were charged to operating expenses, which would leave the remainder of Mr. Kimball's salary in excess of $1725.00 to be otherwise accounted for. Now answering your question definitely, the total amount apparently charged to construction account would depend upon the amount of Mr. Kimball's salary for those years. On the assumption that it was $2000.00 for the first two years and $2400.00 for the second two years, the amount would be $1925.00 charged to construction account. From Mr. Wheeler's statement the amount charged to construction account would be $1040.66 of Mr. Kimball's salary.

2761 Q. So that when you made these statements on page 82 of your deposition about how much of this engineering item had been charged to construction, you really didn't know what amount had been charged?

A. Not down to the exact dollars and cents. I knew approximately, which I reached by the process of reasoning that I have explained above, without tracing these payments and divisions of the same through the books.

Q. You know now and knew when you made these statements on the books that the books show exactly what amount has been charged to construction, don't you?

A. No as before explained I did not trace the charges to construction but only sought out the charges to operating expenses.

Q. Well that is exactly the point I ask you about, why you didn't trace them when you knew they were on the book?

A. Because I did not take time to do so and did not find it necessary as I was not making up the construction account.

Q. Didn't you make up any construction account at all?

A. No sir I did not.

Q. Is the over $13000.00 to which you refer in the third question from the botom of page 82 included in the over $32000.00 to which you referred before that?

A. I so understand it, the $13000.00 being the proportion of the 20% allowed for engineering for pipe construction, and the $32000.00 being the proportion allowed for engineering in the 20% for the entire construction.

Q. You refer to the period that you have been permitted to investigate. What years are included in that period as you refer to the same on page 82 of your deposition?

A. This reference to operating expenses and this investigation was confined to the years 1899-1900, 1900-1901, 1901-1902.

Q. Now what period is covered by this $13000.00 engineering item that you refer to?

2762 A. I find by reference to my memoranda that the construction for the year 1900-1901 is figured up at $79233.55, of which $13419.76 was the 20%. I do not recall the exact time when this $13000.00 of engineering was referred to, but assume it was for the entire engineering charge.

Q. That is from 1882 to 1902?

A. Yes sir.

Q. You don't undertake then to compare the $2000.00, as you fix the amount for the three years you have investigated, with the $13000.00 covering the whole period, do you?

A. No I wasn't permitted to examine the operating expenses for any other year to find out how these salaries were divided in other years.

Q. I didn't ask you whether you had been permitted to examine the operating expenses; I asked you if you had compared the $2000.00 for the three years with the $13000.00 or life of the entire plant?

A. The engineering proportion of the $114292.71 charge as an addition to construction as I figure it is $16327.53. The engineering for the four years would require a calculation as to the total amount of construction for the term in question and ascertaining the proportion of the 20% added for engineering.

Q. Then do I understand that you are not treating the whole $13000.00 as applicable to the same period as the $2000.00?

A. I couldn't say without investigation. I know that I didn't investigate the salary question—the division of salary as kept for three years.

Q. Are you undertaking to say that there are $13000.00 of engineering expenses applicable to the pipe line during the three years you investigated and only $2000.00 of that sum charged to construction account?

A. I couldn't say without investigating the construction
2763 and proportioning the 20% added charge for profit and engineering supervision, &c.

Q. Well what do you mean on page 82 when you refer to these two amounts. Do you mean to refer the two amounts as applicable to the same period?

A. I don't remember that I was attempting to make any comparison, but simply showing the amount of salaries that had been charged to operating expenses and leaving the balances to go to construction account.

Q. Now you said in one answer that more than $2000.00 and in another answer that less than $2000.00 of engineering had been assigned to construction account?

A. I said Mr. Kimball's salary.

Q. I will ask you to say if on page 82 of your deposition you were not asked if not less than $2000.00 has been assigned to construction account, and if you don't say, that is true, that less than $2000.00 of engineering and not of salary has been charged to construction?

A. As before explained I have shown that less than $2000.00 of the salary of the superintendent, who was an engineer, appears to have been charged to construction account.

Q. That is not what I ask you. I asked you if you didn't say on page 82 that less than $2000.00 of engineering had been charged to construction account, and I ask you to look at the deposition now and say whether or not that is a fact?

A. The difference, as I understand, is whether Mr. Kimball's salary is engineering or something else.

Q. That is not what I am asking for. Do you not find on page 82 of your deposition the second question from the bottom the following question and answer? "And while the engineering has swelled the total of these estimates over $32000.00, you have found,
so far as you have been able to examine the accounts, that
2764 less than $2000.00 of the engineering has been assigned to construction account and the balance paid out as operating expenses." Your answer is "That is true."

A. I do, and I have explained how I found this amount less than $2000.00 for the years that I examined.

Q. Are there no other engineering items than those you have mentioned above charged to construction for these three years?

A. I don't think I found any; I don't recall that I found any.

Q. Did you look to see whether there were any or not?

A. For the year 1899-1900?

Q. I didn't ask you that question. I ask if you looked to see whether there were any other items of engineering charged to construction or not?

A. As before stated I did not undertake to dissect the construction account, but the operating expenses only, and therefore encountered only the salaries that are divided between construction and oper-

ating expenses. If there are other or additional salaries charged to engineering during those years I do not recall having encountered such charges. Mr. William Wheeler's salary, who was the supervising engineer appears to have been charged up in full to operating expenses during those three years and the proportion stated of Mr. Kimball's salary to the same account, leaving the balance of his salary to go to construction.

Q. Did you look at all to the books to see what had been charged to construction account?

A. I may have looked over the construction account in a general way, but as I did not make up a construction account, I did not very closely or thoroughly dissect this account. I recall a charge of $9000.00 to Wheeler and Parks along about 1891 but for the three years covered by the examination of operating expenses, I do
2765 not recall any other charges for engineering.

Q. Isn't your inability to recall them due to the fact that you never examined the books to find them?

A. As before stated, I do not recall that I made a search to find definite charges of this character, and don't think they are there, as the salaries of the force appear to be fully accounted for, or nearly so.

Q. Are you swearing now from your inference or according to the books?

A. From both.

Q. If we assume Mr. Nixon that Mr. Elbert Wheeler is a competent person in the position of Treasurer of this company, and that he handles not only the financial affairs of this company but those of several other companies as well, and is, by reason of this last fact able to divide the expenses of his office and reduce the expenses of this company, what exception do you find to employing him as Treasurer at Boston?

A. Of course you ask for my opinion in the matter and I think it would be simpler and more economical for the company to let the superintendent discharge these duties at Knoxville as the receipts of the company are ample for paying the expenses of the company with a considerable surplus.

Q. Why would the size of the receipts and disbursements justify employing a Treasurer any more in Knoxville than in Boston?

A. Because if the receipts were ample for the discharge of the expenses and obligations of the company, no financing or negotiating would be necessary and the duties of the Treasurer thereby simplified to the simple handling of the funds of the company.

Q. You say that no financing or negotiating is necessary in the business of this company. Do you affirm that as a fact?

A. I base this conclusion upon the conditions that I have found during the three years' term that I have examined the in-
2766 come and operating expenses of the company, which have shown that the receipts are ample to discharge the operating expenses and leave a surplus of some $64000.00 per year, and therefore assume that under this condition that no financing or manipulation would be necessary to carry on the affairs of the company.

Q. Do you know when the consolidated mortgage of this company was executed and what amount of bonds it authorized?

A. No sir I have given these subjects no attention. All I know on that subject is what is disclosed in the record to some extent.

Q. What is the date and amount of bonds of that consolidated mortgage as shown in the Treasurer's deposition?

A. I would have to refer to his deposition and recite what he states there on that subject, as that is all I know about it. Mr. Wheeler states on page 118 of his deposition in answer to a question "The sale was consum-ated in May 1901, and deliveries made from month to month thereafter until October 18th, on which date the $411000.00 had been disposed of. They drew interest from February 1st, 1901, payable February 1st, and August 1st, of each year. On page 19 he says "The mortgage is dated July 3rd, 1901."

Q. For how much bonds?

A. He says it authorized the company to issue one million dollars, and it has issued $411000.00 and we have $104000.00 of them in the company's Treasury.

Q. Now in view of those facts do you still say that no financing was necessary during this period of three years you investigated?

A. That would depend upon whether this financing was done by the president, treasurer or promoters, or somebody else, or whether it was necessary to do it at all. My statement was based on the abstract operation of the Water Company alone without relation to financing or dealing in securities or anything of that kind.

2767 Q. You state that no financing or manipulation was necessary. Do you still say so?

A. Yes sir, if the receipts of the company were $100000.00 and the expenses were $30000.00 or $33000.00, no financing would be necessary except to take care of the surplus safely.

Q. What about the floating debt that the company had to a large amount. Was no financing necessary for taking care of that?

A. I hav-n't taken that into consideration as my assumption was based upon the fact that the plant was paid for when it was built and of course no floating debt could emanate from operation under such a state of facts.

Q. Would the work of makin*f* additions and extensions to the plant the purchase of the Lonsdale company require no financing?

A. That would depend upon how it was done and what you had to do it with.

Q. Well take it the way it was done; did it require any financing when it was done?

A. I don't think this record has disclosed just how it was done.

Q. Well take what the record discloses as to how it was done; did that require any financing?

A. No it seems to have been more a matter of bargaining than financing.

Q. Where was the money raised to pay for the additions and extensions and for the Lonsdale plant?

A. That is not disclosed from the record as to whether these expenses came from the Treasury of the company or from outside

sources. The extensions were not very expensive or extensive, being simply the connecting of the Lonsdale pipes with those of the old water company.

Q. How about the purchase of the Lonsdale plant at a cost
2768 of something like $100000.00 and the $79000.00 of extensions that you testified to in one year here. Would it require no financing to raise money for those things?

A. It would depend upon what amount of money the company had in its treasury when it undertook these deals. If it had $180000.00 on hands not much financing would have been required.

Q. Did it have $180000.00 on hands?

A. I have no means of knowing.

Q. Hav-n't you examined the books of the company?

A. Yes sir but I don't think they show, and I don't think anybody could determine from them how much money was on hands, as the balances shown by the books appear to have been made up long after the years had passed.

Q. Well what is the reason you don't know there was $180000.00 on hands or not? The books don't show it do they?

A. I have never examined the bank books and books that would show these things.

Q. With your knowledge of bookkeeping can't you tell from these books themselves whether they have been falsified in any way or not?

A. No, I have never made any charges about falsifications.

Q. Upon the face of these books do they show earnings to the extent of $180000.00 applicable to these purposes you refer to?

A. Yes sir they show sufficient earnings to cover those purposes.

Q. And available for those purposes?

A. Yes sir if they had retained them.

Q. Now if they were on hand, wouldn't the books of the company show that fact?

A. Well they might and they might not.

Q. Well do they show it?

A. I think they do.

Q. What do they show?

A. They show that cash balances have been evaporated
2769 away, or disposed of by charges for heavy payments.

Q. Where is one of these instances in the last three years where heavy cash balances have been evaporated, as you say?

A. On page "1" is a charge to construction "E. W. L. B. W. Co., Purchase W. R. Memo., charge $4600.00" and another similar charge on the same page of $78,000.00, that are sufficiently strong to evaporate a pretty stiff cash balance. There is another charge of $37,000.00 which I am not able to find just now.

Q. The $78,000.00 that you refer to is in part payment of the Lonsdale plant, isn't it?

A. I so assume.

Q. Why do you apply your phrase "evaporated" to that; isn't that a proper payment?

A. No, my answer was that it would require a good cash balance

to pay an amount of that size or magnitude, or that a charge of that magnitude would evaporate a good cash balance. I never questioned the propriety of the charge.

Q. Now will you look to the opposite page of the cash book from the one where the $78,000.00 appears as you have stated, and see if you don't find, as of the same date where the money came from?

A. Yes sir, there is a credit on the other side of the cash book for the same amount "Note payable F. B. McQ. per E. W."

Q. Do you still say that that was a cash balance used up in that way?

A. No sir I didn't say so in the first place. I said these charges were of sufficient magnitude to use up a large cash balance.

Q. But they didn't use up the cash balances, did they?

A. I don't know; I have no means of knowing whether they represent any cash whatever; I doubt that they do.

Q. Do you say from the books that that $78,000.00 didn't
2770 eat up the cash balance?

A. No, the books indicate that this amount was passed from side to side of the ledger.

Q. Do you mean by that it was borrowed and paid out in part payment of the Lonsdale plant do you, or do you mean that it was improperly passed from side to side of the ledger?

A. The books would show that on one side the money was borrowed and on the other side that it had been paid out, but if I was to undertake to translate the transactions like you wanted me to do in the board item yesterday afternoon, I would assume that these entries simply covered the transfer of securities, and didn't represent the actual handling of that amount of cash.

Q. They certainly *yhrn* would not have the effect of disposing of cash balances?

A. No, there is not a very great cash balance shown on that page of the book.

Q. What do you mean then, when you said awhile ago that large cash balances had been "evaporated?"

A. I said awhile ago that there were charges of sufficient magnitude to evaporate a very large cash balance.

Q. I will ask the stenographer to read what he said on that subject.

A. That was what I meant in the foregoing answer as to these cash balances.

(Stenographer reading answer of witness:) "They show that cash balances have been evaporated away, or disposed of by charges for heavy payments."

Q. Now you have added the last sentence to your last answer since I asked the stenographer to read your answer?

A. I did.

Q. Didn't you mean to say when you gave your first answer on this subject that those large payments had been made out of cash balances from earnings?

2771 A. No, I only meant to show these large payments, and didn't find some of them which I had in mind.

Q. Now, in view of what you have ascertained in your last examination of the books, do you still say that no financing was necessary in Boston?

A. That would depend upon how it was managed, as to whether financing in Boston or financing in Knoxville had been pursued.

Q. Do you think it advisable to allow an operating force at Knoxville, handling approximately $100,000.00 a year, and expending large sums of money, to have no supervision from competent men of affairs, such as the supervising force of this company located at Boston?

A. There are other companies and corporations in operation in Knoxville that handle as large, or larger amounts, that appear to be able to get along without supervision from Boston.

Q. Which ones?

A. I could mention the Woolen Mills, the Rolling Mills, the Cotton Factories and other large operating companies in this vicinity.

Q. What cotton factories?

A. I cannot recall the firm name, or corporation names, but Colonel Tyson runs one of them.

Q. Now then I ask you the question again, and would like to have it answered "if you deem it advisable to allow an operating force at Knoxville, handling approximately $100,000.00 a year, and expending large sums of money, to have no supervision from competent men of affairs, such as the supervising force of this company located at Boston?"

A. I am confident that it would be entirely practical to require a proper bond from a designated official at Knoxville and permit the payment of properly authorized operating expenses, and the holding of the surplus for disposition by the executive offi-
2772 cers, or executive committee, or management of the company, without undertaking to handle the small and minor details back and forth between Knoxville and Boston, which results in expense and delay that is not absolutely necessary.

Q. Considering that fact that the ownership is in Boston, you would arrange the business, as you suggest, even if you yourself were one of the Boston stockholders?

A. Suppose the ownership was in Scotland or France——

Mr. CALDWELL: Now if the court please, I desire to have the witness' interrogation struck out and his answer inserted instead.

COMMISSIONER: I think that would be more proper.

(The WITNESS:) The expense of handling the business at long range would be unnecessary.

COMMISSIONER: I desire to ask the witness a question. Mr. Nixon, if this Company is owned elsewhere, and the stockholders selected a man to stay at Knoxville, and to have power to make extensions, borrow money when necessary, to fix water rates, and to run the company, what ought that man's salary to be for that responsibility and power in an investment of this character?

A. From $3500.00 to $4000.00. I will also add that in this ap-

parent criticism of the methods and management of the company, that these opinions are based upon the most practical and economical management of the company in the making up of proper expenses of the operation of the plant to be allowed from its earnings as proportioned to the fair and reasonable water tax or rates, and not any attempt on my part to criticize or question the method of the company, as I have nothing to do with their management, or how they handle their business, which is an affair of their own.

Q. You refer to practical methods. What do you know about practical methods of conducting a water company, or any other
2773 large corporation?

A. I have had some experience and also observed the methods used in the handling of corporation business, some of which have as much or more magnitude than handling the business of this water company.

Q. Don't you know when it comes to a question of practical knowledge of the water works business that these gentlemen know a great deal more than you do?

A. Yes, sir, in some things they know a great deal more than I do, but what I do know, I know as well as they do.

Q. What is the amount of the franchise account?

A. My recollection is it is disclosed in this record as twenty some odd thousand dollars with some additional charges to be added?

Q. Making what total?

A. I don't recall exactly without reference to the figures.

Q. It has been referred to in questions under the assumption that it was $30000.00?

A. The franchise account on the book, page 254 of the ledger has charges aggregating $22111.81. Mr. Elbert Wheeler's deposition, page 103 discusses an item of $500.00, and on page 110 he sets out payments on franchise account amounting to $11298.61 and on page 111 items aggregating $10713.20, and on the additional pages he discusses other amounts, which he states were charged to expense account and is not sufficiently clear for me to make up the full amount of franchise account. With the items shown on pages 103, 110 and 111 they aggregate $22511.81. The other amounts charged to expense account are not sufficiently described for me to identify them.

Q. The books show $22011.81?

A. $22511.00 it is with me. Well it might be $22011.81.
2774 Q. Now where do you get that other $500.00?

A. It is an item that is discussed on page 103.

Q. You mean the $500.00 item paid to Mr. Cates?

A. Well, he states that this $500.00 was paid to Mr. Cates in two items—was charged to expense account.

Q. That is the $500.00 item that you have added to franchise account?

A. Yes, sir.

Q. In the matter of operating expenses you state that proper operating expenses are matters somewhat dependent upon conditions. Isn't it also a fact that the question as to what are and what are not

proper operating expenses depends in a good many instances upon the judgment of those who have the matters in charge at the time?

A. Yes, sir, that is true and that is the best time to make the distribution of expenditures, that is, when they are made and the management familiar with all the conditions and surroundings.

Q. Were you denied any books, papers or vouchers covering the period beginning March 31, 1899, and ending March 31, 1902?

A. I had vouchers and papers for that term, whether all of them or not I do not know.

Q. My question was were you denied any of them?

A. Well I couldn't say without I knew whether I had them all or not.

Q. Did you ask for any that were not given you?

A. Not many.

Q. Did you ask for any that were not given you?

A. Yes, sir, there were some that were accounted for by an explanation from Mr. Kimball.

Q. Were you denied any that were not accounted for?

A. No, I recall nothing that I asked for that I didn't get.

Q. Then if your information is incomplete it is not in any
2775 way due to the refusal of any one connected with the water company, is it?

A. No, I haven't charged them with anything of that kind.

Q. Did you, in any instance, add anything to operating expenses?

A. I don't think I did. I don't think I found any room for that.

Q. In all your examinations you found nothing in construction accounts that could be transferred from construction to operation, did you?

A. No, I found charged in the operating accounts that I transferred to construction. Perhaps if I had dissected the construction account thoroughly I might have found items that I would have considered proper operating expenses, but as before stated I gave my attention to operating expenses and not to construction account.

Q. Don't you think it the duty of a fair witness in this case when he examines operating expenses to see whether or not any of them are improperly charged for a given period; also to examine the construction items for the same period and see whether or not any of them should be transferred to operating expenses?

A. No, I relied upon the company to take care of that and to properly distribute the expenses that would occur in that line, and did not have time to dissect the construction for those years, and did not have the opportunity to dissect it throughout, as a great deal of it wasn't on the books, having been done by contractors.

Q. Can you arrive at a fair statement of construction and operating expenses for any period without comparing the two?

A. Not if I was making both accounts, which in this intsance I was not doing, confining myself to the investigation of operating expenses and income.

Q. Can you state either one fairly and truly without knowing what was in the other?

A. Yes, sir, I think a fair statement could be made, rely-
2776 ing upon the Company's division between the expenses in the first instance.

Q. You have come here and testified as to operating expenses for these several years. Now if there are items in the construction account for those years that are properly chargeable to operation, your statement is not correct is it?

A. No, I relied upon the company taking care of such items as you describe hypothetically.

Q. You don't know whether there are operating expenses charged under construction, do you?

A. I do not. I assume there are none of importance.

Q. Didn't you examine to find?

A. Oh, no, I didn't undertake to redistribute or reapportion the construction account.

Q. The first item that you have reduced in operating expenses seems to be "Insurance" on page "87" of your deposition, where you cut off $145.00 paid for insurance? Please state in full your reasons for that reduction?

A. I have deducted $145.00 as improperly charged in operating expenses, being payment to Charles F. Parks for premium as security for E. Wheeler $60.00, and a payment to William Wheeler for premium as security for E. Wheeler $60.00, and a payment to the American Surety Company for bond of Mr. Kimball $25.00, making a total of $145.00. My reasons for disregarding these charges as proper operating expenses is the fact that it is usual for officials of corporations and cities, counties and states to bear this expense themselves, and it is not usual for a municipality, county or state or corporation to pay these private expenses of its employés.

Q. If the record of the Board of Directors of this Company authorized those expenditures, you still would not allow them, I presume?

A. If the Board of Directors authorized these expenses they
2777 would be entirely proper within the affairs of the company, but in stating the proper operating expenses for an investigation of this character as between the people and the water company, I regard such charges as improper and considered that they should be eliminated, and did so in making my statement.

Q. You think the officers should be bonded, don't you?

A. Oh, yes, I think that is a proper precaution, as it is in effect throughout the land. In holding office myself I have always given bond and paid for it out of my own pocket when it cost anything.

Q. Suppose the salaries of these officers had been increased to an extent sufficient to enable them to pay these premiums and still remain the amounts at which their salaries were actually fixed, would you regard that as improper action on the part of the corporation?

A. I expect if the books had simply shown the salaries without disclosing these charges, I should have passed them without raising this objection.

Q. You have undertaken to reduce what you say is the total of William Wheeler's salary for the year 1899-1900 from $1105.76 to

$755.76. Please show me any charge on the books for the salary of William Wheeler as supervising engineer aggregating $1105.76?

A. In a detailed answer to a question on this salary account yesterday I gave you the charges to salary account in detail, and one of these items was William Wheeler $1105.76.

Q. Please look to Journal for the years 1899-1900 on page 99-X and see if you don't find these entries there: July 1st, salary Sup. Eng. 4-1 to 7-1/1899 $170.14; October 2nd, salary Sup. Eng. 7-1 to 10-1/1899 $176.26; December 31, salary Sup. eng. 10-1 to 1-1/1900 $183.39; March 31, 1900 salary Sup. Eng. 1-1 to 4-1 $225.97, and say what those four amounts aggregate?

A. The amounts you have called out, added up, aggregate $755.76.

2778 Q. That is the amount you fix for William Wheeler's salary as supervising engineer in this year, isn't it?

A. It appears so, yes, sir, as the record shows that one per cent. of the water collections would have amounted to that amount.

Q. Now look to the book and see if I hav-n't called out those amounts to you correctly?

A. Yes, sir, this is the same entry we had the controversy over yesterday.

Q. Is there any other entry there charging the salary to Supervising engineer except the four items I have read you?

A. Yes, sir, Mr. Wheeler takes credit for $300.00 of Mr. Kimball's salary and board.

Q. Now I ask you if there is any other entry there charging the salary to supervising engineer?

A. Yes, sir, the total charge is $1105.76.

Q. Is the total amount charged to salary of supervising engineer $1105.76?

A. No, the items charged designates the four amounts you recited as salary of supervising engineer; the other items interlined are salary of Secretary $50.00, and $300.00 for board and salary of Mr. Kimball, making Mr. Wheeler's total credit $1105.76.

Q. His total credit for what?

A. Of salary account.

Q. Salary as supervising engineer?

A. Well, it states salary account.

Q. Will you or will you not tell the court what is charged there to the salary of supervising engineer?

A. Of the charge of $1105.76 salary account, three items, to-wit: $170.14, $176.76, $183.39 and $225.97 are items in the charge as salary of supervising engineer.

2779 Q. You found that salary to be for that year?

A. I found the salary account charged with the entire amount, $1105.76.

Q. What did you fix the supervising engineer's salary at for that year?

A. I fixed it at $755.76 and took one-half of it for operating expenses and passed the other half and an additional charge of $350.00 to construction account as it was not properly an operating expense.

Q. Now Mr. Nixon let me ask you why, when I asked you whether or not a certain amount was the amount you had fixed for the salary for the supervising engineer for that year, you added those other statements about other matters not being proper charges. Why did you do that?

A. So as to give you full information on the subject.

Q. Won't you admit that it was your purpose to say something prejudicial to the company if you could?

A. No sir, it was my purpose to give you my reasons and my action.

Q. Will you under your oath say that you had no other purpose?

A. Why yes, except to explain my reasons and my action.

Q. You take out of the operating expenses for this year, 1899-1900 $319.33 stated by you to be the salaries of L-B Company officers. Where on the books do you find this item?

A. On page 244 of Salary Account, the very last charge on that account.

Q. What is the entry?

A. Well it is "ditto" from 100-G, $319.33.

Q. Look at 100-G?

A. Well I am looking at it.

Q. Does that $319.33 appear there?

A. Yes sir.

Q. Is it the only Lonsdale payment items there on that page?

A. No sir there are $3912.66 of charges to L-B Company in that entry.

2780 Q. That is the expense of the Lonsdale-Beaumont Company; what is the date of the first item entered?

A. It has no date. It is entered under the head of 1899-1900.

Q. Now why did you not allow this item of $319.33?

A. I have stated in a previous answer that I was unable to find any explanation as to what it was for, for what year, what time or for what duties, or anything about it, that being covered by vouchers that I did not have, and the further reason that these expenses of the Lonsdale-Beaumont Water Company occurring largely in the year 1899, were not a proper operating expense of the Knoxville Water Company?

Q. When did the Knoxville Water Company buy the Lonsdale plant?

A. The records show that they took charge of it January 1st, 1901.

Q. I ask you when the company bought that plant?

A. I don't know the date of the transaction.

Q. Do you know it approximately?

A. No I never knew even approximately, but by reference to Mr. Wheeler's deposition on page 354 in answer to a question when did the Knoxville Water Company first obtain control of the Lonsdale-Beaumont Water Company, he answered on or about the 1st day of January 1901, shortly after the passage of the ordinance of the City of Knoxville in 1899. He was asked, had there been any preliminary agreement prior to that time looking to the acquisition

of the Lonsdale-Beaumont plant by the Knoxville Water Company, he answers, well for specific facts on that I would have to refer you to the records of the Treasurer, I will say to the records—and then he repeats a lot of the record and a meeting of the Board of Directors on November 2nd 1899 which shows that the purchase appears to have been approved and discussed, and I should say that transaction, or the action of that meeting would fix the date
2781 at about November 2nd, 1899, or perhaps later than that if additional details had to be arranged and concluded.

Q. Did you examine the books of the Knoxville Water Company to see whether or not the receipts of the Lonsdale-Beaumont Company had entered into them?

A. Yes sir I made a statement from the books and accounts and traced some of the intermingling of accounts of the two companies.

Q. Did you find that any receipts of the Lonsdale company had entered into the books of the Knoxville Water Company?

A. My recollection is that I did, but whether for the back year or the early part of 1900 I am unable to say without more specific reference and examination.

Q. Look at Journal 100-F and see if you find any receipts from the Lonsdale Company entering into that statement?

A. Yes sir on page 100-F the L-B-W Co. is charged to sundry matters a mass of figures aggregating $6749.60, taps and another lot of figures $98.10, P. Cons. $15.00, repairs 25 cents, construction $20.00, expense $1.25 aggregating $6884.20.

Q. Don't that book show those were receipts from the Lonsdale Company?

A. No sir it shows charges of the Lonsdale Company to these accounts.

Q. Well as you don't admit them I will ask you to state the water item of $6749.60 and trace it through the books and see what final disposition was made of it, unless you will admit that it was receipts received from the Lonsdale Company?

A. I will admit that the amount charged to water account was carried through the books and results in effect as being receipts to that extent.

Q. Now look to page 207 of this ledger and see if you don't find this same item of $6749.60 actually carried into the water account as a part of the water account of the Knoxville Water Company?

A. Yes sir I find such a credit, but I regard it as a very
2782 improper entry, as a separate account should have been kept with the Lonsdale-Beaumont Water Company, and its affairs kept separate and not intermingled and intermixed with the general accounts of the Knoxville Water Company in this way at that time.

Q. That is you are applying your knowledge as an expert bookkeeper to the manner of keeping the books?

A. No I am making my statement of my knowledge of proper bookkeeping that this intermingling and mixing of affairs of the Lonsdale-Beaumont company with the general accounts of the Knoxville Water Company is not a proper proceeding or method of keeping these accounts.

Q. And that entry made at the close of the fiscal year you regard as improper, although the merger of the companies had then occurred?

A. Yes sir it is certainly a very improper entry. The account with the Lonsdale-Beaumont Company should have been kept separate and if carried into the affairs of the Knoxville Water Company, the result only should have been so carried, and not this attempt to mingle its operating expenses and separate affairs with the operating and income accounts of the Knoxville Water Company.

Q. Don't the examinations that you have just made show that the Lonsdale-Beaumont accounts were kept separately until the end of the year?

A. No sir the attempt is made on the books to mingle them.

Q. You say that an attempt is made to mingle them? Are they mingled?

A. Yes sir they are mingled.

Q. Well then it passed beyond a mere attempt, didn't it?

A. Yes sir the attempt seems to have been accomplished on the books, but in making up my statement of proper operating
2783 expenses I endeavored to eliminate this mixture of accounts.

Q. Did you charge the Knoxville Water Company with any income derived by it from the Lonsdale plant in 1899?

A. I didn't charge the company at all; I didn't make any charges.

Q. You made up a statement of its income for that year, didn't you—I mean 1899-1900?

A. Yes sir.

Q. Did you include in that statement of income anything derived by it through the Lonsdale plant?

A. I would have to investigate the account again to recall; I expect I did though.

Q. Don't you know that you did?

A. I am under the impression that I did—that I took the balance of water account as I found it on the books.

Q. And that included this Lonsdale-Beaumont account?

A. It might have done so.

Q. I don't want to know whether it might have done so, I want to know whether it did or not?

A. The aggregate balance of water account used for the year 1899-1900 was $84483.31 plus the receipts from taps and supplies, and this balance would include the amount charged to the Lonsdale company.

Q. Then if you charge us with that, are we to be allowed nothing for expenses in connection with it?

A. That would require some explanation of the expenses as to how far they run back, what years they cover, for what period of time they were incurred, which explanation I did not have.

Q. Now when I ask you if we are entitled to nothing for expenses you say it requires explanation. I want to know if you had any explanation as to how far that $6749.00 item went when it went into your statement?

A. No sir I thought it was better to put it in and let the company explain.

Q. It didn't require any explanation, but you wanted to
2784 increase our income?

A. No I thought the best way would be to put it in and let the company furnish particulars as to what should be charged against it.

Q. Isn't it a fact that you didn't know it was a Lonsdale-Beaumont item when you made your statement?

A. Oh yes I think I found it.

Q. Well did you know it?

A. I am of opinion that I did as I seem to have used it. I dissected these water receipts.

Q. Well if you dissected them why didn't you allow us the $319.33 that we have charged there to L-B?

A. Because I didn't know what years they were for or what years they covered or for what officers or any proper explanation of the charge.

Q. Did you have any proper explanation of the $6000.00 charge of water when you put that in your account?

A. No I adopted it as I found it. I used it as I found it and incorporated it in the account; whether it runs back behind the time or not, I cannot say. Perhaps the proper application of these items on both sides of the account should be adjusted with reference to the time in question; that is the water receipts for the year that was being treated should be used and the proper expenses chargeable thereto for the part of the year, after reasonable scrutiny, should also be admitted. This I was unable to do without more papers and explanation.

Q. Why didn't you make that statement before you were cross examined on this point?

A. Because it was not necessary as I had stated that I had disallowed those salaries because I had no explanation or information as to the time, or whether they were proper or not.

Q. In the Repairs Account, the only reductions that you have made from this as shown on page 88 of your deposition are two accounts of the L-B Company, $209.10. In view of the in-
2785 vestigations that we have just made regarding the affairs of the L-B Company, will you now allow us that Repairs item of $209.10?

A. No sir that item is covered by the same state of facts and conditions as applied to the salary item that was eliminated.

Q. And the same as applied to the $6000.00 water item that was accepted?

A. Yes sir if it can be shown that that water don't apply to that year or wasn't in that year, it should be eliminated.

Q. As a matter of fact both sides of the account should be admitted or both excluded, isn't that so?

A. As stated in a previous answer I think what is proper on both sides of the account should be admitted and the improper items should be excluded from both sides of the account.

Q. Now can you show the court any way to make that kind of an analysis and exclusion?

A. Yes sir I think I could do it if I had the information and explanations at hand.

Q. What explanation and information would you need?

A. All the vouchers and papers in the first instance and if that wasn't sufficiently full I might require additional explanation.

Q. Would you follow up and ascertain the rent that each water taker paid when you went to investigate the $8000.00?

A. No sir I simply incorporated the credit to the water account.

Q. I ask if you would do it in order to arrive at a correct understanding of that item in view of the strict methods you would adopt in investigating the items on the other side of the account?

A. No I don't think this would be necessary as it is a simple ascertainment of the receipts from this property from January 1st, to March 31st, which would be sufficient.

Q. Let me ask you this question Mr. Nixon: Assuming that all these receipts and al[illegible] all these expenses are prior to January
2786 1st 1900. Would you then exclude both of them?

A. As the company has attempted to incorporate them, I think if it was not a very bad trade that the proper and applicable items on both sides of the account might be accepted.

Q. Now do you mean by that that you would exclude them on the supposition I have advanced, or that you would not exclude them?

A. I mean that if the receipts were clear and proper that I would include them and such expenses as were applicable to the production of those receipts and for the time in question should be allowed, but if these expenditures run back into former years and cover old bills of salaries and other indebtedness of the Lonsdale company, fuel accounts and other obligations, that it would not be proper for the Knoxville Water Company to assume the same in this investigation, particularly if it showed a bad trade as a resule of the taking over of this competing water company.

Q. Assuming that the amount of collections shown from the L-B Company were made and credited to the Knoxville Water Company and that the salaries paid amounting to $319.33 were either pro rata charges of some of the other officers or employés salaries and deducted from the charge against the Knoxville Water Company or were for employés directly connected with the operation of the L-B plant, then in the light of your former answers can we, or can we not leave this amount in salary account?

A. I would prefer to make an investigation of these conditions and assumptions before I should be ready to admit whether the Knoxville Water Company should assume this burden or not, if it is a burden.

Q. My question is that you answer on the assumption that I have made. You can then make any explanation that you like?

A. Well if the result of the assumption is that it is to the advantage of the Water Company to accept these receipts
2787 and bear the burden of the obligations connected therewith, that probably the interest of the water company would not suffer from the combination of this business with its affairs.

Q. Coming to the amount of $3982.03 which you say you allow in this year for Pump Station. You say that that amount is the same that is charged by Mr. Wheeler. Please turn to page 61 of E. Wheeler's deposition and see if he does not allow $5203.73 for this item?

A. On page 61, Vol. 2 of Mr. E. Wheeler's deposition in a table in which he is endeavoring to show the operating expenses of the entire plant and of the city proper separately, he has charged to Pump Station $5203.73 and on page 93 in answer to a question as to the Pump Station expense for the year 1899-1900 he gives the amount as $3982.23 and the books agree with him it appears within 20 cents.

Q. Now what makes the difference of the two statements?

A. The difference is $1221.50 and is a part of the expenses of the Lonsdale-Beaumont Water Company.

Q. If that $1221.50 is made up of Lonsdale-Beaumont expenses charged to Pump Station, should it be allowed or disallowed?

A. It should be eliminated until properly explained and shown that it should be assumed by the Knoxville Water Company.

Q. Now you say that should be eliminated until properly explained. Didn't you take hold of these books for the purpose of making proper explanations?

A. Yes sir but I didn't have the books, vouchers and papers of the Lonsdale-Beaumont Water Company.

Q. Why didn't you have them?

A. I was not able to get them; they were not here.

Q. You know that they were burned up, don't you?

A. I have heard that part of them were burned up.

Q. Hav-n't you been informed that they were all destroyed by fire?

A. I have understood that the books were destroyed by fire,
2788 but the vouchers evidencing these payments by the Knoxville Water Company ought to be in existence somewhere.

Q. Is it possible for anybody now to make the investigations and determine results as you think should be done?

A. Yes sir if we could get those vouchers, I think so.

Q. Then why didn't you call for those vouchers and make those investigations?

A. I don't recall clearly, but it seems to me that I was informed that those vouchers were in Boston or somewhere, and not here.

Q. Did you ask that they be brought here?

A. No sir I made no request about bringing them here, as I took it that they were outside of this investigation, until I encountered this mixture of accounts.

Q. You think you can make that investigation and reach those results now?

A. I think if I had the vouchers I could reach those results, but I might require some additional explanation. I don't know until I would go through the papers.

Q. I will ask you to make that investigation and furnish the in-

formation to the court, as I regard it as a part of the work that you have attempted to do in this case?

A. Tendering the papers?

Q. Why certainly, they have been tendered to you all the time sir.

A. I have never seen them, I don't think.

The further taking of this deposition was adjourned until Monday, November 16, 1903, at 1:30 o'clock P. M.

2789 MONDAY, *November 16th*, 1903—1:30 p. m.

The further cross examination of W. M. NIXON continued by Mr. CALDWELL:

Q. Mr. Nixon, have you examined the vouchers and books as to the state of the Lonsdale-Beaumont account from May 1899 to January the 1st, 1900 as requested in our last sitting on the 4th of November?

A. Yes sir I looked through the Lonsdale vouchers that were furnished me and find that they cover items of expenses and material from May 1899 to March 31, 1900.

Q. Have you compared them with the books?

A. No sir I did not compare them with the books. I didn't have time to add them up.

Q. What was the aggregate amount of charges of the items you mention?

A. I really couldn't say as I didn't add them up. I assume that they would aggregate $3982.23, the amount charged, but I am not able to say.

Q. Are you willing now to allow them as part of the operating expenses of the Knoxville Water Company?

A. No, I find upon investigation that Mr. Elbert Wheeler put in the expenses of the Lonsdale-Beaumont Water Company for that year and omitted the water receipts, and that in making up my statement, I included the water receipts and excluded the expenses for explanation as to whether they accrued at the same time or were incurred in production of the receipts, for which the company took credit.

Q. Mr. Nixon why do you say that General Wheeler didn't include the water receipts of the Beaumont plant for that year as a part of the water receipts of the Knoxville Water Company?

A. Because the books show a balance of water receipts for that year as $80680.64 and on page 42 Mr. Wheeler shows the
2790 receipts for that year at $78538.23 and at another place in his deposition my recollection is he shows the receipts at $75500 and some odd dollars for that year.

Q. Well what has that to do with the Lonsdale receipts?

A. Well that is the point; he appears to put in the expenses and leave out the receipts of the Lonsdale Company for that year.

Q. But you showed on the last day of your examination that you put in the receipts and left out the expenses, didn't you?

A. Yes sir, I reversed the proposition and withheld the receipts for an explanation as to whether they were proper or against or necessary

for the production of the receipts for which the Knoxville Water Company took credit.

Q. You mean you took that position after I called your attention to your omission to take the expenses into account, don't you?

A. No sir it appears that I did that in the first place.

Q. Well as that has escaped my attention, I wish you would point out to me where you did that in the first place?

A. My table on the last page of my direct examination shows this. However, I didn't recall it when you were questioning me at the last examination on this subject until after adjournment, and then I examined my memorandums.

Q. Where is that table?

A. On the last page, if I remember correctly, of my direct examination where there is a table.

Q. How is it entitled?

A. A statement of the income & operating expenses for the three years.

Q. Now what page is it on?

A. It is on page 134.

Q. Now where does that show anything about the Lonsdale-Beaumont income or expenses?

2791 A. It don't show or point out anything about the Lonsdale-Beaumont account, but the income for that year, 1899-1900, includes the receipts from that source, while the expenses for the same year excludes the Lonsdale-Beaumont items.

Q. I understood you to say that your deposition would explain that you withheld the Lonsdale-Beaumont expense items for future investigation, but I still don't discover any evidence of that fact in the table that you have pointed out?

A. You appear to have misunderstood me; I stated that I did show, but in the last examination had overlooked this fact until I returned to this table, which reminded me of having taken that action.

Q. But that action doesn't appear anywhere in your deposition, does it?

A. No sir it is not explained or set out.

Q. Well then why was it you didn't make that investigation and determine what uses should be made of the expense items of the Lonsdale-Beaumont Company?

A. I considered the best way to bring that up would be to leave them out and let the company furnish the information.

Q. Why was it any more fair to ask the company to furnish those explanations than to ask it to furnish the explanations about the use of water receipts?

A. The question of fairness was not involved. The company would be interested in explaining the expenses, if omitted, while they wouldn't care for the receipts, as shown by Mr. Elbert Wheeler having omitted them in his report of the earnings for that year.

Q. Then Mr. Nixon the effect of your statement on these points is you didn't know whether these Lonsdale-Beaumont expense items were proper to be allowed to the Company or not, but you still swear

that they should not be allowed didn't you, and isn't that a fair construction of what you did?

A. No sir the indications from an examination of the
2792 vouchers today sustains the contention that these expenses were incurred largely in the year 1899 before the Lonsdale-Beaumont company's property was taken over by the Knoxville Water company on January the 1st, 1900, and until the expenses after that date were segregated from the lumping charge, it appeared to me proper that they should be excluded, and if after explanation such expenses were explained as proper, they could then be restored.

Q. You disallowed them?

A. Yes sir in the shape that I found them.

Q. And you didn't know whether they ought to be disallowed or not?

A. I was satisfied that the larger proportion of them should be disallowed like the taxes for the year before the Knoxville Water Company purchased the property, and various other expenses and charges that had arisen during the previous ownership of the property.

Q. What was the period during which the water receipts of upwards of $6000.00 were collected from the Lonsdale plant?

A. I don't recall that there is any explanation as to how those receipts were divided. In fact I think they are taken as a general credit in the books of the Knoxville Water Company, without showing the particular time to which they apply. I assume they were the general uncollected water bills of that company and others that had accrued after the taking over of the property.

Q. Any part of those receipts for the year 1899?

A. I am not able to say without further examination, but I assume that a part of the amount may have been for that year.

Q. If you didn't know what time those receipts covered, why didn't you treat them like you did the expenses, and hold them out for examination?

A. I thought it a better plan to bring up the investigation
2793 by proceeding the other way, accepting the total receipts as shown by the books and excluding the expenses until separated and explained.

Q. Isn't it a fact then that you went upon the principle of accepting what appeared to be unfavorable to the water company and excluding what appeared to be favorable to it?

A. No sir as stated in a previous answer, I decided on this course in order to bring out the proper explanation of this mixture of the Lonsdale Company's business with that of the Knoxville Water Company, which I regarded as unusual and improper, the better plan being to have kept entirely separate the business of these two companies until the property of the Lonsdale company was taken over and became a part of the plant of the Knoxville Water Company.

Q. You concluded that the better plan of conducting the suit would be to accept as correct what was against the interest of the Water Company and to require it to explain what appeared to be in its interest, and if that is a fact, do you regard that as a part of your functions as a witness in this case?

A. No I hav-n't anything to do with the suit, or the manner of its conduct.

Q. Well when you were put upon these books as an expert witness to state these accounts, why didn't you state one side as well as the other side in this Lonsdale-Beaumont matter?

A. Because as I have just explained, this lumping charge of some $4000.00 of indebtedness and bills of the Lonsdale-Beaumont Water Company, carried into the books of the Knoxville Water Company and distributed through its accounts without explanation as to the time when the same accrued, or the propriety or correctness of the method, was so unusual, and in my opinion improper, that I thought it best to take the reverse course of Mr. Elbert Wheeler and
2794 accept the receipts and exclude the expenses for explanation, he having included the expenses and excluded the receipts for that year from this source.

Q. Do you swear as a witness upon your knowledge of these books that those receipts from the Lonsdale plant are excluded from the books of the Knoxville Water Company in his statement of water receipts for the year 1899-1900?

A. No, they were not excluded on the books, and I did not say so, but they were excluded by Mr. Wheeler in his report of the earnings for that year.

Q. If Mr. Wheeler excluded them—if he did—it is an incorrect statement, isn't it?

A. I should think so.

Q. And if you excluded the other side of the account, that was an incorrect statement too, wasn't it?

A. Yes sir, any part of those expenses that were proper to be charged, my statement would be subject to correction to that extent.

Q. Why don't you qualify the supposed incorrectness of Mr. Wheeler's statement in the same way that you qualify the incorrectness of your own?

A. Because I am only explaining my own action and not undertaking to explain Mr. Wheeler's action. He is able to do that for himself.

Q. What part of these Lonsdale-Beaumont expenses that we have been talking about, do you now allow as proper expenses to the Knoxville Water Company?

A. Those that occurred or accrued after the property was taken over by the Knoxville Water Company on January the 1st 1900.

Q. What part of the water receipts from the Lonsdale-Beaumont Company do you charge the Knoxville Water Company with?

A. Receipts for the same time.

2794½ Q. How much were those receipts for that same time?

A. I am not able to say without an investigation of the records.

Q. Then do you recede from your former position charging the Knoxville Water Company with all those Lonsdale-Beaumont receipts?

A. Yes sir if part of those receipts accrued before the property be-

came that of the Knoxville Water Company. I think the fair and proper method would have been to have kept the business of the two companies entirely separate until consolidated.

Q. But prior to this cross examination you charged all of it to the Water Company without any explanation, didn't you?

A. I didn't do any charging; I included all the receipts shown by the books as income for that year.

Q. This record will show that on the 4th day of this month, this being the 16th day of the month, the plaintiff in this case tendered you the vouchers the examination for this Lonsdale account. I will ask you when you undertook to make an examination of those vouchers?

A. I ran through them this morning.

Q. And it is a fact isn't it that you don't now know, and never did know what proportion of the Lonsdale-Beaumont receipts should be charged to the Water Company as income, or what proportion of the Lonsdale-Beaumont expenses should be allowed to it as operating expenses?

A. No I have never undertaken to make up a correct statement of this account, but could do so if I had the information, and explanation and proper records.

Q. Looking to the particular item of fuel for the year under consideration, do you now mean to allow or not to allow the item of $1069.25 fuel for the Lonsdale plant?

A. I think that only that part of this account which ac-
2795 crued after January the 1st, 1900, should be allowed.

Q. And you don't know what that part is?

A. No sir I haven't computed it.

Q. If it were a fact that all these expenses and all these receipts were for a period before January the 1st, 1900, would you allow any of them on either side of the account?

A. No I don't think it would be strictly legitimate to include them on either side of the account if they arose from the transactions of a different company from that of the Knoxville Water Company.

Q. Then upon that assumption you would decrease the net income by the difference between the two, would you?

A. Yes sir I think a strictly correct statement of the account would require a revision of this account and a recasting of the same, separating the affairs and business operations of the Lonsdale-Beaumont Water Company from that of the Knoxville Water Company, and not intermingling or mixing them.

Q. Then your whole statement for the year 1899-1900 as you have put it in your deposition, is incorrect?

A. Yes sir it is subject to correction in this particular, as I followed the books on one side and excluded the business of the Lonsdale Company that had been improperly carried into the affairs of the Knoxville Water Company.

Q. On pages 81, 96 and 106 of your deposition you state that you have disallowed certain items of contributions to various public and charitable purposes. Ar-n't all the purposes to which these contri-

butions were made, of a character to promote the general welfare of the City of Knoxville?

A. On page 81, I find no reference to contributions. On page 96 I have fully explained my action in regard to these contributions, and in reply to your last question I have no criticism to make of these contributions, and think they are entirely proper for
2796 any patriotic citizen of Knoxville, but that they are not proper expenses of operating the plant of the Knoxville Water Company under a franchise from the people with a taxing privilege.

Q. I find that my reference to page 81 should have been page 89, and you may make any statement upon that point in addition if you desire to do so?

A. Well the only items on page 89 are contributions to the Knoxville Carnival, $100.00, testimonial to Major F. K. Huger, $10.00, to the Easter Edition of the Sentinel, $25.00, and expenses paid at Boston, which are fully covered by my previous explanation.

Q. The aggregate of these contributions for the three years covered by your examination, does not amount to $400.00, does it?

A. I hav-n't computed it, but assume that it is less than $500.00 anyhow.

Q. Well isn't it less than $400.00?

A. I will have to figure it out. The total deductions for the three years amount to $3158.78, of which $387.32 is for sundry contributions and gratuities.

Q. By total deductions, you mean deductions on all accounts?

A. Total deductions from expense account for three years.

Q. Your disallowance of taxes on the Lonsdale-Beaumont property for the year 1899-1900, is based as I understand upon the assumption that the Knoxville Water Company did not get the income of the Lonsdale-Beaumont Water Company for that period?

A. My deduction of taxes paid on the property of the Lonsdale-Beaumont Water Company for the year 1899 was deducted because the property did not belong to the Knoxville Water Company in the year 1899.

Q. Now why do you assert that?

A. I assert it from the fact that the record shows that the
2797 property was not taken over until January the 1st, 1900, and the purchase was not authorized by the stockholders or directors of the company until November 1899.

Q. And you understand the facts in regard to the ownership of the Lonsdale-Beaumont plant by the Knoxville Water Company to be as you have just indicated?

A. Yes sir I reach this understanding from the depositions of the Messrs. Wheeler in which they set out this history of the transaction.

Q. You don't understand that the Knoxville Water Company received the income of the Lonsdale-Beaumont plant for the year 1899, or any part of it do you?

A. I didn't pay any attention to this feature as I didn't regard it material. The simple question under consideration was whether it

was proper for the Knoxville Water Company to include in its operating expenses taxes on the property of another company for a previous year.

Q. Were the payrolls of this company submitted to you for the year 1899-1900?

A. Which company?

Q. The Knoxville Water Company?

A. Yes sir the payrolls for wages and salaries of operatives were examined by me and also some of the vouchers for salaries.

Q. You say some of these things were submitted to you. I want to ask you if you asked for anything in the way of payrolls that you didn't get?

A. I don't recall anything in the way of payrolls that I did not receive, but some payments of salaries are not covered by payrolls.

Q. You took off the totals of the payrolls, didn't you?

A. Yes sir of the payroll vouchers.

Q. You took off also the totals of the various accounts in
2798 which the payrolls are distributed, didn't you?

A. I think so; that is operating accounts. I didn't trace these payments into construction accounts.

Q. You mean that you took off the statement of the distributions only of those parts of the payrolls that you thought applied to the payment of operating expenses?

A. Yes sir such payments as were distributed to operating expenses.

Q. You speak on page 91 of your deposition of an item of $2412.24. Didn't you find that that was the total of that part of the various payrolls between May 1st, 1899 and March 31, 1900 distributed and charged to salary account, and that it comprised all the payroll charges to salary?

A. Yes sir this amount is the total of the part of wages and payroll distributed to salaries for that year.

Q. In your last answer on page 91 and extending onto page 92 you say that this is a very difficult matter to ascertain from the books.. Why is there any difficulty about it Mr. Nixon?

A. It is difficult on account of the system that was practiced at that time in handling these accounts, it being the practice to charge everything to expense account and make the distribution at the end of the year as was done this year on page 100-C of the Journal where $20245.15 is divided out between 20 accounts.

Q. Don't the various items appear on the same line where the charge to expense account is made in the cash book?

A. They might be, but a needle in a hay stack wouldn't be a circumstance in locating the same through all these masses of figures without any explanation.

Q. I didn't ask you whether they might be or not; I asked you if they were not?

A. The cash book shows on page 1 that the total expenses
2799 for that year was $22299.64. This entry on page 100-C distributes $20245.15 of that amount between 20 different accounts and leaves the balance in expense account.

Q. Do you or do you not understand the system upon which that part of the books is kept—meaning the cash account?

A. I have understood the system all the while, but understanding it doesn't relieve it of its complexity.

Q. Did you follow these distributions out?

A. No I didn't undertake to check all these several thousand different items.

Q. Now going back to the question that I asked you, does not this aggregate as made up from the addition of the various entries show on each line of payment to expense the various items to which they belong?

A. Yes sir there are abbreviations that indicate——

Q. I didn't ask you that; I asked you if these are not shown?

A. They were shown in a way.

Q. They were shown in a way that enabled you to follow them out, were they not?

A. Yes sir by assiduously tracing an amount you could follow it through.

Q. What do you mean when you say at the top of page 93 that the explanations in this book are exceedingly meager?

A. I mean what I said.

Q. Are they more meagre than they usually are in books of that kind?

A. Very much so.

Q. Did you ever examine any other books of that kind?

A. Yes sir I have examined a great many books and I have never seen so much "skeleton" as is displayed in these books, being long lines and great combination of figures without any explanation or writing to explain them.

Q. Don't they all refer to a report or voucher?

2800 A. No sir. Page 11 for instance before me is $731.24 charged under an entry of "sundry to supplies," which is made up of a column of figures and dates without any items or particulars.

Q. Now read the line that follows those entries you refer to?

A. The first entry is "sundry to supplies." The first line is "taps 320 feet 1' inch black pipe, second-hand, $9.60," and the balance of the page is 4 lines of sundries, and the balance is entirely blank, except figures and dates.

Q. The dates and the amounts of the weekly reports all appear on that page opposite the various items, don't they?

A. The dates and amounts are the only information given; no reference to reports or no explanation as to what these amounts are for, whether for pipe, packing, or dog meat, cigars or what.

Q. What do those dates refer to?

A. They are simply dates.

Q. What do they refer to?

A. There is no reference marked on the book.

Q. Well I ask you what they refer to?

A. They don't give any reference.

Q. Do you know what they refer to?

A. They refer to the date the charge is made.
Q. Don't you know they refer to weekly reports?
A. I do not.
Q. Doesn't the books show in other places that that is what they refer to?
A. Not in this vicinity there is no reference to any reports. The next three pages are a string of figures the same way.
Q. Doesn't the same method and style of the book show what those dates refer to?
A. No sir unless you guess at it.
Q. Don't you know what they refer to, Mr. Nixon?
A. I should take it that they refer to the dates that these charges were made.
Q. Didn't you have in your possession weekly reports and know that those dates refer to those weekly reports?
2801 A. I had some weekly reports.
Q. Don't you know those dates refer to weekly reports?
A. I do not, as there is nothing to indicate that they do so.
Q. Didn't you have enough of those weekly reports in your possession to know that they are what those dates refer to?
A. No sir, in this instance you are talking about the books and not about outside papers and collateral information.
Q. Did you examine the books carefully and study the method on which they are kept?
A. I tried to, but there is not much method.
Q. Did you understand or fail to understand the method?
A. I think I got onto the different methods.
Q. Well then don't you know that those dates refer to weekly reports?
A. No sir I do not.
Q. Well if they do then, you don't understand the method on which the books were kept, do you?
A. Yes sir I understand the method, and could guess that that was such reference, but there is nothing to explain that there is such reference.
Q. Don't you know that such was the method and that you are now obstinately refusing to admit the fact?
A. No indeed.
Q. Taking up your allowance of expense or operating account for the year 1900-1901 as shown on page 93 of your deposition. In view of what has been said about the previous year, do you still decline to admit the correctness of the Treasurer's statement for 1900-1901?
A. I certainly do as the Treasurer's statement is $35775.89 and my statement of proper operating expenses for the same year is $30827.52.
Q. Please turn to the deposition of Elbert Wheeler page
2802 5 and see if the item $1156.34 as contained in the question asked you on page 93 of your deposition is contained in his deposition?
A. No, he reaches the amount of $35775.89 on page 5 of his

deposition without showing this item separately, if he included the same.

Q. Well what business has that item of $1156.34 in the table on page 93 of your deposition?

A. I don't know unless I got it mixed from another year, as the aggregate of these amounts, without the water rates litigation is $35695.89, there being a difference in repair account of $829.53 which appears to have been covered by the charge for painting standpipe, and some other discrepancies that I probably assumed made this aggregate of water rates litigation, which perhaps belong to the next year, as I didn't attach very much importance to Mr. Wheeler's table, giving more attention to my own. A recast of the figures now shows that the items set out aggregate the amount claimed, to-wit: $35775.89 without the water rates litigation item, which is erroneous in this list and belongs in some other year.

Q. You state on page 94 of your deposition that there is a difference in Mr. Wheeler's statement in his deposition and the books amounting to $926.49 of which $96.96 is in the expense account and $829.53 in the repairs account. Please show us from the books the item of expense of $2879.20 that you testify about?

A. On page 254, Profit and Loss, is charged to sundries, one of which sundry accounts is $2879.20.

Q. What is it charged against?

A. Profit and Loss is charged to expense $2879.20.

Q. That is general Profit and Loss account?

A. Yes sir.

Q. Now all the items on that account except the last one of surplus are operating items, interest, rebates and abatements, are they not?

2803 A. All these sundry accounts except surplus, interest and perhaps painting standpipe and abatements appear in operating account.

Q. Do you except also the rebates?

A. Well the rebates go with abatements as deductions from income.

Q. Now subtract $95589.44 as given in this account, the sum of the items of abatements $4224.01, interest $30651.89, rebates $292.89 and surplus $24644.76 we get an aggregate of $59813.55, do we not, which subtracted from $95589.44 leaves a balance of $35775.89, the amount the Treasurer deposes to?

A. Yes, sir, that is the result reached by the calculations recited.

Q. And that makes the Treasurer's statement in his deposition agree with the books, does it not; I mean in the aggregate?

A. Yes, sir, the aggregates are the same.

Q. And then any items on this Profit and Loss account not specifically mentioned in the Treasurer's items on page 5 of his deposition, must have been closed into some of the other items, must they not?

A. Yes, sir, it is reasonable to conclude that they are covered in some of the other items.

Q. Does not a comparison of the Treasurer's testimony with this

amount show that he has closed an item of spring rent $90.00 and an item of electrical survey $6.96, a total of $96.96 as it appears in Profit and Loss account in the book into expense account in his deposition?

A. Yes, sir, these items would explain or cover or amount to the discrepancy in the expense account as stated in his deposition page 5 as shown by the books.

Q. Doesn't a similar comparison show that an item of $829.53 for painting standpipe as shown in Profit and Loss account does not specifically appear in the Treasurer's testimony, but is included under the head of Repairs therein?

2804

A. That appears to be a fact, as this charge for painting standpipe is the same as the difference between the Repairs account shown on the books and the amount stated by the Treasurer on page 5 of his deposition.

Q. These last items then thus placed make the Treasurer's deposition and his books agree in the detail as well as in the aggregate of this account, do they not?

A. Yes, sir, these items cover the differences indicated in my answer on page 94.

Q. Then the question on page 94 which assumes and the answer thereto which affirms a difference between the books and General Wheeler's account in this respect, should both be corrected, as I understand you?

A. No, sir, there is no correction necessary except this explanation of what these differences cover which account for the difference of $926.49 which I pointed out—these two items aggregating the difference which I pointed out in my answer on page 94.

Q. The only difference in regard to these two items as they appear on the books and on the deposition is that they are in the aggregate in the deposition and separate on the books, isn't it?

A. Yes, sir.

Q. And a careful examination of the books would have demonstrated the fact, wouldn't it?

A. Perhaps so.

Q. As regards reduction of boiler insurance, I understand that your only objection to this item is in charging the premium of the three years' policy all into this one year?

A. That is true.

Q. Now in deducting $116.67 from this item for the two unexpired years and leaving $58.33 only in for this year, have you in the operating expenses for the year 1901-1902 which you have also analyzed added $58.33 to what the books show for that year's proportion of this item?

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A. No, I do not appear to have done so, but it would be proper and should have been done.

Q. Did you allow any boiler insurance in the year 1899-1900?

A. No, there appears to have been no boiler insurance charged under the head of insurance for that year. If it is charged, it is under the head of some other account.

Q. Upon the assumption that for that year and the two preceding

years there was a three years' policy just as there was in 1900-1901, an allowance for boiler insurance in 1899-1900 would be proper, wouldn't it?

A. It might under such assumption; my idea being that each year should stand for itself and pay the expenses applicable to that specific year.

Q. Now, you have analyzed three years, and speaking in regard only to this boiler insurance, you have allowed no such insurance for 1899-1900 and only $58.33 for the next year and none at all for the year 1901-1902. In view of those facts don't you think it fair that the entire item of boiler insurance should stand as it now appears upon the account, especially as you have averaged these items later by dividing the total by "3"?

A. I am not ready to admit your assumption regarding these charges as facts, as an investigation might disclose that this boiler insurance was charged under some other account. If this is not a fact, the correct method would be to pro rate this amount over the three years covered by the policy. If such insurance was carried for the previous and succeeding year and the premium not charged as you assume, a correction would be proper, distributing this expense over the three years.

Q. Please show me the item in the book or show me the voucher showing $20.28 of taxes paid on property in the country and
2806 not used for water works purposes?

A. It appears to be covered by voucher $1147, dated February 25th, 1901, and Mr. Elbert Wheeler explains on page 95, Volume "2" of his deposition that this item is on property not used for the operation of the plant within the city limits. He says he thinks it is the Tillery Springs property.

Q. Now do you know what property that applies to?

A. Nothing more than what Mr. Elbert Wheeler states, and Mr. William Wheeler having stated in his deposition that the only property outside of the city used for water works purposes is the Lonsdale standpipe lot, I assume that this Tillery Springs was not a live part of the water works property.

Q. If to any extent this amount was paid as taxes on the Lonsdale standpipe lot, it would be a proper allowance to the company, wouldn't it?

A. It would.

Q. Do you know what date taxes are assessed of in Tennessee? don't you know that it is the 10th of January of each year?

A. That is my understanding.

Q. Now the Knoxville Water Company was operating the original plant the 10th of January, 1900, wasn't it?

A. Yes, sir.

Q. Then don't you think that this entire tax charge would be proper to be allowed?

A. If as explained, this tax is on the Lonsdale stand pipe lot or property used for water works purposes, it would be a proper operating expense, but I shouldn't regard that this date of assessment, &c., would have a very important bearing.

Q. I understand that you concede that there are some charter franchise or organization expenses which a corporation like this can rightfully incur?

A. Yes, sir, and in making up our cost of replacement of the plant we added an item of $10000.00 to cover such expenses, being in the nature of original organization or promotion.

2807 Q. You allowed it in your cost of replacement, but in your statement of comparative value you left it out, didn't you?

A. It seems that we did as we did not regard this item as an existing part of the plant.

Q. Does it follow then that anything paid upon this account is wiped out the moment it is paid?

A. The proper placing of an expense of this character is perhaps a debatable question, or one of law. The only point I am positive on is that such an expense is not a proper operating expense to be apportioned entirely on one year's operation. If a proper operating expense, it should be reasonably distributed over a series of years.

Q. How many years would you distribute this item over?

A. Over perhaps 5 or 10 years, or it might be properly charged to construction.

Q. Which would you charge it to as a matter of proper bookkeeping?

A. In this instance and surrounded by the conditions upon which this charge emanated, I should think that it would be more properly charged to construction than as an operating expense, as it arose from the consolidation with and taking over of the Lonsdale-Beaumont Water Company property, and is in the nature of a part of the purchase cost of that property.

Q. Have you allowed it either in construction or operating expenses?

A. I excluded it from operating expenses, and paid no attention to it in the matter of construction, as I did not make up a construction account.

Q. Did you put it in your statement of comparative values or consider it in that statement?

A. No, it was covered in our statement of cost of replacement of plant, but not in our statement of comparative value, but it might be proper that it should have been added to the total of com-

2808 parative value, had we not overlooked the item, we would probably have added an amount to cover such expenditures.

Q. Do I understand you to say that in making your replacement account up you at any time had this item in your mind and made allowance for it; isn't it upon the contrary a fact that you simply overlooked it and obliterated it from the account?

A. No, on the contrary in making up our cost of replacement, we considered and discussed this expense and allowed or added an item of $10000.00 to cover such expenditures of organization, &c., and this very charge was considered, and attracted our attention as to the propriety of adding such an amount or an amount to cover such expenses.

Q. But you did leave out of your statement of comparative values

on which you are basing your opinion as to the present worth of these works?

A. Yes, sir, in our statement of comparative values, being the actual comparison of the existing physical, tangible, elements of the plant, such an expenditure or investment was not considered, or I may say was overlooked.

Q. You would then add this $965.00 to your statement of comparative value?

A. Yes, sir and perhaps a larger amount to cover original organization.

Q. How much would you add for that?

A. I should say $1000.00 would not be excessive.

Q. Is there any other item of this kind you would add to your statement of comparative values?

A. I don't recall any one that would be necessary in making such comparison.

Adjourned until 9:00 A. M. Tuesday morning, November 17th, 1903.

2809 TUESDAY MORNING,
November 17th, 1903—9.00 o'clock a. m.

Continuation of cross-examination of WM. NIXON:

Q. Mr. Nixon on page 95 in the matter of Repairs Account you state that Mr. Wheeler calls for $3287.82 and the books $2458.29, this difference of $829.53 has already been explained and accounted for, has it not?

A. Yes sir that is explained as a charge for painting standpipe.

Q. So that in the matter of Repairs Account the only difference is between you and either the books of Mr. Wheeler being four items aggregating $142.94 as I understand?

A. The additional differences between my report of operating expenses—on this element of operating expenses—is made up of four items in addition to this painting standpipe item.

Q. They aggregate $142.94, don't they?

A. These four items do.

Q. Why do you object to allowing $48.20 for the two hydraulic jacks?

A. Because these jacks are tools and equipment now and not properly Repair items, as Repairs are supposed to include materials worn, or deterioration or breakage.

Q. Suppose there had been a break in the pumping machinery requiring several tons of it to be lifted, to be repaired, and suppose further that nothing could be found to lift this weight except these jacks, and that except for this one break or job the jacks have been put to no use, how could they rightfully be charged to anything except the repair account?

A. The fact that the jacks had not been used except for this one duty is no reason why they are not legitimate supplies or tools on hand. Material and labor required in repairing the pumps in the

supposed case you have stated would be probably charged to
2810 Repair Account, but the jacks, no more than the pipe cutting tools or tapping machine which might be required to repair a broken main or other defects in the pipe system should not be any more considered.

Q. You think then that a tool or implement bought to accomplish a particular purpose and not available for any other purpose in fact though theoretically available for other purposes should not be allowed as a charge on Repair Account?

A. I do not for the reason that these jacks are not only theoretically but practically available for other purposes—the pumps may require repairing again, or substitution when these jacks would be available and useful.

Q. To what account would you charge the jacks?

A. I made no charge of the matter. I simply excluded them from Repairs Account.

Q. I didn't ask you what account you had charged them to, but what account you would charge them to in order to make a proper entry on the books?

A. I think they should go to supply or tool account.

Q. Is that a construction or operating account?

A. It is a property account.

Q. Is that a construction or operating account?

A. Property accounts are in the category of construction but not entirely the same.

Q. Have you made any use of this excluded item of $48.20 for these jacks?

A. No sir not in this statement of operating expenses except to eliminate it as an operating expense.

Q. Did you make any use of it in your table of comparative values?

A. Yes sir.

Q. And with that specific item consciously in your mind?

A. Our statement of comparative values provides for $6150.00 for tools, teams, supplies, office furniture, fixtures &c., that should
2811 properly be carried in that quantity to cost this amount.

Q. That does not answer my question. What I wanted to know was whether or not having eliminated this item from the operating expense account you had it in mind as affecting any other account that you were making up; I don't ask your general policy, but if this particular item was considered and had any effect in your determination of any other account?

A. I don't recall that we focused our attention particularly to this tool or appliance, but that we made a general allowance to cover such property.

Q. Upon what grounds do you reject the bill of B. B. Dallas for "I" beams amounting to $64.74 as a part of repairs account?

A. Because I regarded it as a construction expense and not an operating expense.

Q. Please look to the voucher covering this Dallas item, being

voucher #584, and see if it does not appear on the back of the voucher that this is for new stringers for pipe bridges laid originally in 1891?

A. There is such endorsement on the back of voucher by Mr. Kimball, but this statement would not in my opinion change this material from construction purposes or uses to that of an operating expense. The fair assumption would be that these "I" beams were put in the place of wooden beams or other more temporary supports that had originally been used for supporting the pipes across these openings.

Q. How have you defined "Repairs" heretofore in your deposition?

A. I have defined repairs as material, labor, expenses and property used for repairing or replacing deterioration or restoring breakage.

Q. Have you quoted your language exactly?

A. Substantially.

Q. Didn't you use the following language, "material that
2812 is used up or gone into repairing, deterioration or breakage?"

A. Yes sir that was my original statement.

Q. Now didn't these "I" beams go into repairing deterioration?

A. Yes sir in a sense, but to have been a proper repair item the material should have been the same as used in the first place. An "I" beam is a more permanent and expensive material than the ordinary supports used, and is, in my judgment, a material that should be classed as a construction expense rather than for repairs. The other theory adhered to would justify the substitution of large lines of old pipe with new pipe and classing it "repairs" which is manifestly absurd.

Q. Do you wish to argue the question any further?

Mr. PICKLE: He was only giving his reasons Mr. Caldwell.

Mr. CALDWELL: He volunteered a very long statement that I hav-n't asked for.

A. No I think my illustration is sound and convincing as to my elimination of this material from operating expenses.

Q. Now I understand that if these supports as put in in 1891 had been iron "I" beams you would have allowed the similar "I" beams furnished by Dallas under this bill to go into the Repair Account?

A. Well I doubt that that would have been correct, as the material that is expected, and in this case appears to have lasted 20 years, it is in my judgment more properly classed as construction material than operating expense.

Q. Then you don't adhere to your last qualification of your definition of repairs that the material used in repairing deterioration should be of the same kind as the material originally used?

A. No, my definition is not "cast iron," but permits of some variation to meet the conditions encountered. For instance if the orig-
inal supports had been other than "I" beams, and the repair
2813 had been made by similar material and at much less expense than the "I" beams would involve and the material used of

more temporary character, perhaps it could have been properly classed as repairs and a current expense of operation.

Q. Then I understand if instead of using these "I" beams the water company had used wooden supports, you would allow that as an item of repair expense?

A. If they had used this material and the cost had been comparatively unimportant, which would no doubt have been the case if wooden beams had been used, I would no doubt not have eliminated the item from operating expenses for that particular year.

Q. Which is the test then as to whether this item belongs in repair account the kind of material used or the amount of the expense?

A. I think the amount of the expenditure and the character of material, and its life and permanency should all be taken into consideration in the proper distribution of this expenditure.

Q. From your knowledge of the cost of the different kinds of materials, isn't it your opinion that the wooden supports would have cost more than the wrought iron "I" beams over a span covered by the length of these Dallas "I" beams?

A. That would have depended largely upon the character of the construction.

COMMISSIONER: Well consider it as proper construction done in a workmanlike manner the way it should have been, and answer it on that assumption?

A. In some of these instances the weight is not heavy; in fact only one joint to protect, and a wooden trestle might have been used, and in that case the expense would have been very small.
2814 Of course in a long span of a large pipe and the position of the joints could have required heavier framing and perhaps some trussing that would make the wooden device as expensive, or more so than the "I" beams.

Q. Doesn't it appear from voucher #584 that two of these "I" beams were 35 feet long?

A. Yes sir the voucher indicates that two of them were 35 feet long and two of them 33 feet long, but the conditions are not sufficiently explained that the span should be necessarily that long. There might have been a pier, a post or trestle formerly where these "I" beams were placed.

Q. Wouldn't it have cost more to put wooden supports, two of 33 feet long and two of them 35 feet long in the place of these "I" beams than it cost to put the "I" beams there?

A. As I have endeavored to explain in a previous answer, if the spans were necessarily 33 and 35 feet long in the clear, and the pipe to be supported large and weighty, and two or more joints to be protected, a wooden structure of this character would no doubt have been more expensive than the "I" beam arrangement.

Q. And would you under those conditions have allowed the cost of those wooden constructions as a part of the repair account?

A. The exactly correct placing of this expense should be based on actually what these "I" beams replaced or substituted. It is possible that piers or other supports may have been supplanted by this "I" beam construction. My point is that expensive and permanent con-

struction is more in line with a construction expense than a repair item or operating expense.

Q. Do I understand you that the proper placing of this particular item is a matter of bookkeeping to be determined largely with reference to the conditions under which the work was done and the nature of the work done?

A. To a considerable extent,

2815 Q. Did you before eliminating this item from repair account, ascertain what the conditions and the nature of the work were, and if so state those conditions and the nature of the work?

A. I visited two of these pipe bridges.

Q. Where were they?

A. One on East Clinch Street where a wrought iron regular pipe bridge is used, which is treated as a construction expense, and the other on West Clinch Street where a 12 inch pipe is supported by two "I" beams, the supporting arrangement in both instances being practically pipe bridges, and in my judgment stand on the same basis and are both construction items or construction expenses.

Q. And they are both charged to construction, ar-n't they on the books?

A. The one on East Clinch Street is charged to construction and included in the estimated value of the pipe distribution system, but these "I" beams, if they are the ones, are charged as an expense of operation of the plant for the year under consideration.

Q. These particular "I" beams were used in the North Knoxville pipe bridges, were they not?

A. I really cannot say as the record, vouchers and papers do not disclose.

Q. What was the $25.00 in repair account for stone steps at the Pumping Station expended for?

A. Vouchers Nos. 441, 442 and 463 in favor of M. Hurd for $25.00 for "furnishing and setting stone steps at Pump Station" indicates that this expenditure was for a permanent improvement of the Pump Station building and is therefore a construction item and not operating expense as applicable to the particular year under investigation, and was therefore eliminated from the repair account and expenses of operating the plant for that year.

2816 Q. This work was for setting piers under the stone steps at the Pump Station, wasn't it?

A. Well admitting that they were stone piers for the stairs, the expense is still manifestly a construction item, being an addition to, or enlargement or strengthening of the building at the Pump Station.

Q. Where do you draw the line between construction and repairs in cases of this kind?

A. An item of this character like stone work, and a part of a building and a permanent improvement, appears to me as a proper construction expense, and not a current, or expense of operating the plant for the particular year under investigation.

Q. Under what conditions would work of this kind be construction, and under what conditions would it be repairs?

A. Well under nearly all conditions it would be construction, but there could be exceptional instances where such work and expenditures might be properly classed as repairs and distributed to current expenses of operation. The papers and explanations covering this item make no special instance of this case.

Q. You don't expect specifications to appear on the invoices, do you?

A. Yes sir it is a good plan for the endorsements on a voucher to show briefly and concisely the facts of such transactions.

Q. If those stairs were outside the building and were broken down and a stone-mason was hired to put new piers under them to sustain them in proper position, these piers being in place of and not in addition to those previously there and heretofore charged to construction, would you again charge such work to construction or to repairs?

A. I think I should require more explanation of the situation and conditions than you have recited in your assumption before
2817 changing this expense to a current operating charge; it could be assumed under the assumption that you have recited that a set of wooden steps had been in use and decayed, or broken down, and were renewed or replaced by masonry or stone work, and under this assumption of the conditions, the expense would be manifestly a construction item.

Q. Well as you would now require more explanation than appears in my assumption, why didn't you require more explanation when you acted upon this item in making your statement?

A. The information disclosed by the bills and vouchers appeared to me sufficiently conclusive without further explanation, and by its elimination as an operating expense, I assumed that if our action was improper that the explanation would be forth-coming by the company.

Q. Do you mean to say that you assumed that the charge was improper and eliminated it from the repair account without knowing whether it was improper or not?

A. With the information disclosed from the invoices and vouchers I was sufficiently informed that the charge was improperly placed as a current operating expense and accordingly eliminated it.

Q. But didn't you say just a little while ago that these vouchers, &c., didn't furnish the necessary information?

A. I think not; they furnished sufficient information for me to base my action upon, and convinced me that the items should be eliminated.

Q. Now Mr. Nixon I want to ask you again upon what principle you justify your action in eliminating items in this way without exact knowledge of the facts upon the assumption that the company will offer explanations, and I ask you if you do not consider it your duty as an expert witness in this case to find the exact facts
for yourself and to reach the proper final conclusion without
2818 putting the company to the necessity of explaining these things?

A. In this instance the papers given me by the company furnished ample information to convince me that the expenditure was not properly placed. In answer to the latter part of your question I would say that if I had undertaken to make an inspection for a verification of the innumerable charges, that this investigation would have been very unreasonably prolonged, and that if the company has not furnished sufficient information at the outset for proper action on these items, it is up to them to now do so.

Q. Is it up to the company, or is up to you as a witness put upon these books to ascertain and swear to the facts and to do justice between these parties in your testimony?

A. I regard it as up to me to ascertain what I could from the information furnished me, and based my action accordingly. I am not acting in a judicial capacity, but simply reporting facts and conditions as I found them.

Q. Did the information, consisting of vouchers, &c., furnished you, supply you with all the information necessary to a proper determination of the account to which this item should be charged?

A. The information disclosed by these invoices, vouchers and endorsements thereon, taken alone was I regarded entirely sufficient for basing the action taken in eliminating this construction from the current operating expenses.

Q. My question was if this information gave you everything necessary to determine the place which this item should be put in the books of the company and in this investigation, not whether it gave you sufficient intimation to justify you in eliminating it from the repair account?

A. Confining myself strictly to the "record" as the Supreme Court practices, the information disclosed appeared quite
2819 sufficient and convincing for my action, but as stated in a previous answer additional evidence might be adduced, and explanations furnished that would show that this construction was special and peculiar and possibly necessary as a repair item, but I have not yet confronted such a condition, or been furnished such an explanation.

Q. In the matter of the Pumping Station account, if I understand you correctly the only correction that you have to make is in taking into account the stock on hand at the beginning and end of the year?

A. Yes sir this appears the only correction I have made on the account of expenses of the Pump Station for that year, the stock on hand at the beginning of the year being $442.05 and at the end of the year $693.09 producing an excess of $251.04 by the purchase and carrying of these supplies, and I eliminated this amount as proper to ascertain the correct expenditures for those purposes for the year under investigation, and am corroborated in this action by General Elbert Wheeler in his statement on pages 93 and 94, Volume "2," where he explains the increase of expenses on this account by this method of conducting the account, which he states was changed at the end of that year and carried

forward in a separate property account denominated "Supplies account."

Q. The result reached by you then is to reduce the Pump Station account for this year by the difference between $693.09 and $442.05, to-wit: $251.04?

A. That is correct.

Q. This Pump Station account is found on page 426 of the Treasurer's account, is it not, and the year we are now considering is the year shown thereon from April 1st, 1900 to March 31st, 1901 being the first items on that page?

A. It is.

Q. Now leaving out of consideration the stock account en-
2820 tered in red ink on the first line of the debit side of this account, please state if the next five lines hav-n't amounts aggregating $4226.01 which are all charges against this account and for this particular period?

A. Yes sir they comprise all the charges to this account for that year except the supplies and stock account charged in red ink.

Q. Now going to the credit side and leaving out both the stock account on the third line and the closing entry to Profit and Loss on the fourth line, don't the first two lines, aggregating $26.78 represent all credits to this account for the periods under consideration?

A. Yes sir there are only four credits on that account for that year and omitting two of them leaves the other two small credits amounting as you state to $26.78.

Q. Now is it not a fact that the credits subtracted from the debits leaves a balance of this account, eliminating the stock entries of $4199.23 instead of $3697.15 as you give it?

A. Yes sir this manipulation of the account would increase the expense of that account to the extent that you explain, but it would not be a proper or correct recital of the conditions recorded by the account.

Q. Omitting any consideration of the "manipulation" for the present, is it not a fact also that if from this sum of $4199.23 we subtract the difference between the stock account at the beginning and at the end of the year amounting to $251.04 it will give us what both the Treasurer and books claim, to-wit: $3948.19?

A. Yes sir this further handling or manipulation of the figures would produce the result you state, as deducting $251.04 from $4199.23 leaves $3948.19.

Q. That is what the books and Mr. Elbert Wheeler state, is it not?

2821 A. The books and Mr. Elbert Wheeler charge for expenditures for the year under consideration for this account the balance necessary to square this account, $3948.19, but this balance, taking the transactions of this account separately for this year is not correct without taking into consideration the increase of supplies carried over into the next year.

Q. Hav-n't you just taken that difference into consideration by subtracting $251.04 from $4199.23?

A. Yes sir but this result is attained by omitting the stock or supplies charged as on hand at the commencement of the year.

Q. Where did you get the $251.04 that you have just subtracted in order to obtain the $3948.19?

A. You appear to have gotten it by taking the difference between the stock on hand at the first of the year from the amount of the same at the end of the year.

Q. Then I have taken into account the stock in my questions, hav-n't I?

A. You have taken into account the difference in stock on hand or supplies. Your treatment of this account is correct as pertains to the company, but does not disclose the strictly correct expense of operation of this department for this year alone.

Q. If it will make it any clearer, take the $4199.23 and add to it the stock at the beginning of the year and deduct from that aggregate the stock at the end of the year and state what result is reached?

A. The same result that I reach.

Q. What is that?

A. I added all the charges to that account, including the stock on hand, and gave credit for the credit items including the stock on hand at the end of the year, and reached the same balance that was carried by Mr. Wheeler to Profit and Loss, but to ascertain the exact transactions for this account I deducted therefrom the accre-
2822 tions or increase of stock that was on hand at the end of the year to be carried over into the next year—the practice appearing to have been to charge everything that was bought for the Pump Station to that account as an expense. Mr. Wheeler explains, as before stated that this was corrected by the adoption of a different system that would disclose the correct results of expenditures for these different departments.

Q. Now Mr. Nixon the amount that you allow on this particular account is $3697.15, is that right?

A. It is; I find this as the correct amount of expenditure for this department for the year under investigation.

Q. Now how does Mr. Wheeler get his amount of $3948.19?

A. By adding up all the charges to this account and deducting therefrom all the credits which include an item of $693.09 for supplies purchased during the year or previous years and on hand at the end of the year and carried forward to this account for the succeeding year, and in that way obtaining a balance of $3948.19 which he carries to the debit of Profit and Loss account as the amount of expenditures for that department for the year under investigation, which is excessive to the extent of the growth or accretions of supplies during the year under consideration.

Q. And that accretion or growth is $251.04?

A. Yes sir.

Q. Now in getting that balance of $3948.19 Mr. Wheeler took into consideration all the charges for this year on both sides of the account, didn't he?

A. He did, and used the enhanced or increased supplies on hands at the end of the year in doing so.

Q. And you then deducted $251.04 from his amount of $3948.19? and reached your result of $3697.15?

A. As the correct amount of expenditures for this department for that year standing alone, without mixing up with pre-
2823 vious or succeeding years.

Q. Do you mean to answer my last question "yes"?

A. "Yes" might answer it, but the figures answer it fuller and more conclusive.

Q. Now if the $251.04 is obtained by taking the difference between $442.05 on one side of the account and $693.09 on the other side of the account, and Mr. Wheeler has taken into his calculation both the $442.05 and the $693.09 why has not he already subtracted the $251.04, so that your subtraction of it makes an additional and second subtraction of the same amount?

A. That is a fact; his balance or the balance that he obtains is correct as far as the books of the company are concerned, but in securing the actual expenditures for this department for the year in question without this mixture of supplies which have grown during the year to the extent of $251.04 it is necessary to reduce Mr. Wheeler's balance to this extent.

Q. Now suppose you eliminate the stock account entirely; wouldn't that result in increasing the charges to Pump Station account for operation?

A. Yes sir this would reduce his balance, which should be done.

Q. The question is if you eliminate the stock account entirely from the cost of Pump Station operation, would it not result in increasing rather than reducing the charges against this account?

A. I have eliminated this amount from his balance with the result that it has reduced the charge from $3948.19 to $3697.15.

Q. I ask you the third time that if you eliminate the stock account entirely from the cost of Pump Station operation, would it not result in increasing rather than reducing the charges against this account?

A. Yes sir, and I have in effect done this in securing my
2824 amount.

Q. How much does it increase the proper operating charges on this account for this year?

A. $251.04 which I have corrected by deducting this amount. On pages 93 and 94 Mr. Wheeler explains this condition by saying "through a change of account of sundry supplies which were charged against the account at the begining of the fiscal year and were not so charged at the end of the fiscal year, these supplies being in the nature of special cast piping and fittings which we considered should not be charged to Pump Station account but carried in the general account of supplies, although the practice previously appears to have charged them to Pump Station account as if they had been used" and explains the next year that this produces a difference of over $600.00.

Q. Now Mr. Nixon what does this amount of $3697.15 represent in your deposition in regard to the Pump Station account?

A. It represents the expenditure in that department of operation of water works plant for that year after eliminating growth in supplies, &c., as explained by Mr. Wheeler in his deposition.

Q. Your opinion is as I understand you that the stock account should be eliminated entirely from this Pump Station account?

A. No, to arrive at the exact result, the gain or growth of the supplies on hands should be eliminated from the balance of debits.

Q. What do these books show as the gross expenditure of this Pump Station account for this period?

A. $3948.19.

Q. Don't they show $4199.23?

A. No sir they show $3948.19.

Q. As the gross expenditure?

A. As the amount which Mr. Wheeler has carried to his
2825 Profit and Loss account as the expenditure for this department for that year.

Q. Well I ask you for the amount of the gross expenditure shown by the books?

A. The charges to this account of cash for wages and expenses for that year aggregate $4221.65; for purchases and supplies $4.36 and there is also charged on the books in red ink the balance of supplies on hand from the previous year, $442.05 which you eliminated in your treatment of the account.

Q. Now didn't you find awhile ago that leaving the stock account out entirely and deducting the credits of $26.78 from that total of $4226.01 would reach the sum of $4199.23?

A. Yes sir it will reach such a sum.

Q. That is a correct arithmetical result isn't it?

A. Yes sir it is simply the subtraction of a small amount from a large one.

Q. Now how do you get that amount of $4199.23 down to $3697.15?

A. I did not use this amount but used Mr. Wheeler's balance of $3948.19 and deducted from it.

Q. Well how did Mr. Wheeler get his balance of $3697.15?

A. He didn't have any such balance.

Q. How did he get his balance of $3948.19 I mean?

A. He appears to have secured it by deducting all the credits from all the charges on that account.

Q. Well why isn't that right?

A. It is as showing the business of the water company, and using the balance of stock on hand as a basing charge for the succeeding year.

Q. You take off the $251.04 from his balance?

A. Yes sir in order to obtain the exact transactions of this department for the year under investigation.

Q. What department?

A. The Pump Station expenses.

Q. Now if Mr. Wheeler added in the $442.05 stock account
2826 at the beginning of the year and deducting the $693.09 of stock account at the end of the year, why had he not already deducted this item of $251.04?

A. Because he carries the stock on hand at the end of the year forward into the next year and has it on hand for purposes of running that department for the next year, which is in effect making the year under consideration or investigation pay part of the expenses of the succeeding year.

Q. But if Mr. Wheeler has already deducted that $251.04 as included in the $693.09, hav-n't you deducted it a second time without reference to connecting the two years?

A. Yes sir I have deducted it in order to obtain the result for that year alone.

Q. Then it is twice deducted in your method of reaching this balance of $3697.15?

A. Yes sir and correctly so.

Q. Now what is your total operating expenses in all departments for the year 1900-1901?

A. $30827.52.

Q. Now ought not that amount to be increased by this $251.04 which you have twice deducted in the matter of this Pump Station account?

A. I think not.

Q. Well why not?

A. Because it was properly deducted so as to ascertain the results for the year in question and not carry it into the next year.

Q. Was it properly deducted twice?

A. I have only deducted it once.

Q. But you admit that Mr. Wheeler had already deducted it once don't you?

A. No, he deducted the gross amount and other credits.

Q. Well that included the $251.04 didn't it?

A. Yes sir the gross amount was $251.04 larger than the stock on hand at the beginning of the year which represented the
2827 growth or increase or accretions of the supplies charged to that department for that year.

Q. But he did deduct the $251.04?

A. No I deducted it.

Q. Do you deny that it is deducted at his calculations and that that is the necessary mathematical result of his calculations?

A. No I have stated several times that his method was correct between the water company.

Q. And whom?

A. And itself.

Q. Now what use does Mr. Wheeler make for the next year of this $251.04?

A. He carries it forward—the first opening charge is that on the account of the next year and it goes out at the end of the year with only $38.31 on hand.

Q. Now how has he treated it for this year 1900-1901?

A. Treated what?

Q. The $251.04?

A. He don't appear to have treated it at all.

Q. Hasn't he deducted it from Pump Station account for that year?

A. Not separately.

Q. I didn't ask you whether he deducted it separately or not; I asked you whether he had deducted it?

A. No he deducts the total amount.

Q. Do you deny that the result of deducting the total amount is to deduct this $251.04?

A. I do not.

Q. Then if it was deducted from that year why shouldn't it be carried forward properly into the next year?

A. He does and it is properly carried forward.

Q. But he should have credit for it on the preceding year if he deducted the amount?

A. He has taken credit for it.

Q. And does he get credit under your result of $3697.15?

A. The debit amount is used on the credit. This is an expense account and is not a credit account.

Q. The result is however that he has reduced the amount claimed by the water company as expenditures of this account by that
2828 $251.04 hasn't he?

A. No, I have deducted the $251.04.

Q. Well doesn't he do it also?

A. No sir he deducts $693.09.

Q. I have asked you a half dozen times if that didn't include this $251.04?

A. Yes sir $693.09 is larger than $251.04.

Q. And he has in fact deducted from his claims of allowance for expenditures of this account in this year an item which necessarily includes this balance of $251.04 that you still further deduct from it, hasn't he?

A. Yes sir his balance as obtained is the correct balance with relation to the succeeding year as he has carried forward to the next year the total amount of supplies on hand at the end of the year.

Q. Well now what do you do with the $251.04; do you carry it forward into the next year?

A. No sir I do not, take up the next year alone by itself and treat each year separately.

Q. And the next year you deduct the $693.09 again don't you?

A. The next year I deduct $961.04 which is obtained by taking the amount carried to supply account the next year, $553.33 and the amount carried to new Pump Station machinery account $1100.85 and deducting therefrom the stock on hand at the commencement of the year $693.09—the effect being that the entire $693.09 is availed of the next year by reducing the overcharge.

Q. And that notwithstanding the fact that Mr. Wheeler had already substracted that identical $693.09 in the preceding year?

A. Yes sir he states that this is properly done in his deposition on pages [illegible] and 94.

Q. States that what was properly done?

A. That the method of carrying this account was changed and therefore effected a correction to the extent of some $600.00 the next year.

—. Now you carry forward into the next year the $693.09 and the $251.04 do you?

A. No sir I only carry into the next year $693.09.

2829 Q. And what did he carry forward?

A. That is what he carried forward.

Q. Isn't the $251.04 in the account for the next year?

A. No sir he don't show it.

Q. Doesn't the $693.09 appear in his next year's account as being carried forward?

A. Yes sir, it does, the very first charge on this account for the next year is stock on hand $693.09.

Q. Well that is what you referred to awhile ago in saying that the $251.04 was in the account for that year?

A. Yes sir that is what I meant, that the $693.09 was the first charge on this account for the next year, and I presume necessarily includes the $251.04, as it is the larger amount.

Q. Now Mr. Nixon in 1900-1901 the stock on hand at the end of the year was greater than at the beginning, therefore you deduct the difference from the Treasurer's statement to get what you call the actual result, is that correct?

A. The actual result of the operations for that year stand alone without mixture or mingling with the succeeding year?

Q. In 1901-1902 stock on hand at the end of the year was less than at the beginning, and you still deduct the difference to get what you call the actual result. If it is correct to reduce the resultant amount when the stock at the beginning is less than at the end, is it not equally correct to increase the resultant amount when the stock on hand at the beginning is more than at the end of the year?

A. Your question seems to be based on incorrect premises, as the stock on hand at the end of the succeeding year is $1654.18, being $961.09 greater than at the beginning of the year, therefore your question does not apply.

Q. But I ask you the question without regard to whether it applies or not, I am asking you a hypothetical question?

A. Well this is rather too much for me and I would rather confine myself to actual figures.

2830 Q. Well can't you tell whether the principle is a correct one or not?

A. You seem to be under a misapprehension as I am separating these years and not carrying these accounts forward and connecting them together as they were handled by General Wheeler.

Q. Well lets just leave the misapprehension out of the question and answer the question?

A. I don't think I can trace out the several hypotheses that you have laid down.

Q. Well the question is a very simple one, if it is correct to reduce the resultant amount when the stock at the beginning of the year is less than at the end of the year, is it not equally correct to increase the resultant amount when the stock on hand at the beginning of the year is greater than it is at the end of the year?

A. I have encountered no such condition.

Q. I am not asking you about conditions; I am asking you a hypothetical question?

A. The correct method, as I understand it, is to get at the actual transactions for each of these years by themselves without connecting, mingling or mixing them with the preceding or succeeding years, so as to ascertain the exact amount of operating expenses for this department for the year under investigation.

Q. You decline then to answer the hypothetical question?

A. I do not think I am able to apply it to the conditions encountered here.

Q. What do the books show the amount of stock on hand at the beginning of the year 1901-1902 to be?

A. This account is charged for the year 1901-1902 with stock on hand at the beginning of the year $693.09 and is credited
2831 with stock on hand at the end of the year $38.01, but stock account for that year shows that there was on hand at the pump station March 31, 1902 and carried to the supply account $553.33, and to new pumping machinery account $1100.85 making a total of $1654.18.

Q. Now I ask you about the book account—that book account, is that there where $693.09 stock on hand at the first of the year and $38.31 on hand at the end of the year, wasn't it?

A. That is a fact. I thought I might as well give you the others as you would go right into it the next question.

Q. Now do you cut the stock account out and treat it by itself in 1901-1902?

A. Yes sir.

Q. Do you treat it exactly as you did in 1900-1901?

A. Yes sir.

Q. Well what have these additional items you just mentioned awhile ago got to do with it then?

A. They were carried out of this account into other accounts as Mr. Wheeler has explained in his deposition.

Q. Then isn't it a fact that you have treated the 1901-1902 account as Mr. Wheeler did the 1900-1901 account, and not as you treated the last named account?

A. No sir I didn't follow him altogether.

Q. But you didn't follow the plan that you had adopted for the preceding year, did you?

A. Yes sir I adhered to the plan of the preceding year.

Q. Did you take into consideration for the preceding year anything except the stock account of itself in reaching your result of $251.04?

A. Yes sir I took the growth of the supplies or enhancement in 1900-1901 and in 1901-1902 I proceeded exactly the same way, as this account had grown more in the latter year than the former.

Q. Had it grown according to the books?

2832 A. According to the books and stock account of supplies on hand.

Q. I asked you if it had grown according to the books?

A. No, it had almost vanished according to the books the stock on hand, but as a matter of fact this was not correct as Mr. Wheeler has explained in his deposition fully.

Q. In the salary account for this year your only changes — in charging portions of the salaries of Mr. Kimball and the two Messrs. Wheeler to construction rather than to salaries?

A. My corrections for salary account for this year——

Q. I don't ask you what they are, I ask you if the changes you make are not of certain parts of salaries from operation to construction?

A. That is correct, the charge amounting to——

Q. I don't ask you about the amount as I will ask you about the amount separately. For this year you found that of Mr. Kimball's salary he had charged $500.00 to construction and $1500.00 to salaries, didn't you?

A. I did.

Q. And you deduct $500.00 more from salaries and add it to construction, making his account stand $1000.00 salaries and $1000.00 construction?

A. Yes sir the effect being that one-half of it was included in operation expenses and the other one-half to construction.

Q. And you did this without any knowledge whatever of the work or services he performed?

A. Yes sir except in taking into consideration the amount of construction for that year which was $79233.55 which I thought warranted a 50% division of his salary.

Q. Was Mr. Kimball in Knoxville during all this year?

A. I presume so as his salary appears to run throughout the year.

2833 Q. You don't know whether he was here during the entire year or not?

A. No sir I wasn't here.

Q. Then your division of his salary is pure assumption isn't it?

A. Yes sir, but the assumption is based upon the conditions that I found in the record and on the books.

Q. Are you aware of the fact that during this year there was another engineer permanently on the work?

A. There is some trace of some payments to another engineer during this time, but for how long or what he did, and other particulars of that character I am not advised.

Q. I asked you the direct question if during this year there was another engineer permanently on this work?

A. I stated all I know about it is what I see from the books and records that indicate that there was another engineer paid various amounts, some of it charged to construction—perhaps all of it charged to construction.

Q. Do you regard $2000.00 as an excessive salary for Mr. Kimball?

A. No sir.

Q. Even if he had no engineering work to do, wouldn't that be a reasonable salary for him as Superintendent in the management of this water company?

A. Yes sir the Superintendent of the water company at Chattanooga is not an engineer and he gets $2750.00.

Q. Then if Mr. Kimball's salary was not excessive, and there was another engineer on these works, would you still take off $1000.00 of his salary and apply it to construction?

A. Yes sir, I don't think the amount of the salary, or its compatibility with the services or attainments of the Superintendent effective in this connection. The conclusion I reached was that Mr. Kimball was in charge of the work, even if he had another engineer under him. In fact I am under the inmpression that in his deposition he explains he was in entire charge of all this work.

2834 He states on page 108 that all this work was under his direct personal supervision.

Q. Now if you had allowed $2000.00 of salary, if no construction had been done that year, upon what principle do you take off one-half of it and apply it to construction, when as a matter of fact the construction was done that year with another engineer on the ground?

A. Because his duties were divided and his talent was employed in the construction and supervision of this work—while of course he supervised the regular routine operation of the plant, he was availed of in this construction, and his salary should be properly apportioned to conform with what was done.

Q. He did apportion it himself didn't he, or the company apportioned it?

A. Somebody apportioned it partially—somebody made a division of his salary charging one-fourth to construction.

Q. Now upon what principle do you charge one-half of it when you certainly know less about it than the persons who made that apportionment?

A. Upon the principle that the construction amounting to $79233.55 would easily merit or demand sufficient of his attention to bear one-half the burden of his salary.

Q. If the other engineer, Mr. Bowker had not been on the work, would you carry still a larger portion of Mr. Kimball's salary to construction?

A. Perhaps this would have been proper, but I didn't take the other engineer into very serious consideration as I assumed that he was simply an assistant and that Mr. Kimball was the executive officer and was the responsible authority in charge of the work.

Q. The fact is you didn't consider the other engineer at all, did you?

A. No, I don't recall that I gave his employment serious consideration.

2835 Q. I assume that when you look at the small item that you have deducted from expense account of $8.00, which you say is a charge of C. C. Nelson of copying Commissioner's report in the Chattanooga water case, you will admit that that is incorrect cer-

tainly in so far as it states that Mr. Nelson made any copy of that report?

A. Yes, sir, this service appears to have been in copying other ordinances and contracts and I confused this copy of the Commissioner's report in the Chattanooga case, or got the charges mixed in some way.

Q. Upon seeing this voucher # 374 which is for compensation of typewriting, copying seven ordinances and water works contract of North Knoxville, West Knoxville and the City of Knoxville, don't you regard it as a proper item to be allowed in the expense account?

A. The voucher states that it is "legal expense" and I take it that it pertains to litigation, and if that is correct it would be more properly distributed to water rates litigation account, which I have not undertaken to handle or place in this investigation, regarding it more as a matter of law than of fact.

Q. Don't you regard it as a proper expense item of the company to get these copies?

A. That would depend upon their use. If such copies were made for the superintendent's files and for his information, it would be a proper expense item, but if obtained for use in litigation over controversies with the City and other parties, I should think that the expense should go to water rates litigation account.

Q. What do you mean by water rates litigation?

A. The account that the company has opened to carry expenses of this character in.

Q. Do you mean of this suit?

A. This suit and I assume other suits.

2836 Q. Well, do you or do you not allow this as a legitimate item of expense for the year in which it was incurred?

A. No, as it is marked "legal expense" I would conclude it was for use in litigation and therefore not a proper operating expense and would eliminate it from the operating expense of the company for that year.

Q. You object to an item of expense in a voucher of William Wheeler of which you neither give date nor number, amounting to $13.23, and of another expense item of $0.97 on vucher # 829. Please give me the date or voucher number of the first mentioned account?

A. The date of the voucher carrying the first item of $13.23 is April 2nd, 1900. I failed to take the number of the voucher. The voucher carrying the 97 cents item is number 829 date October 1st, 1900.

Q. I don't care so much about the amount of voucher # 829 which is only $0.97, but I ask you for what reason you excluded the cost of a telegram there?

A. I excluded $14.20 from these two vouchers as——

Q. Now, Mr. Nixon, please answer the question direct. I object to the manner of the witnesse's testifying.

COMMISSIONER: He asked the question direct and it would certainly shorten the matter very much if you could answer the item asked about.

A. I don't seem to have the items showing what the 97 cents is for.

COMMISSIONER: Here is the voucher and you can see what it is for.

A. I excluded it with the other items as unnecessary expense in the operation of the water company here.

Q. You decline to allow then the cost of a telegram which presumably was upon the business of the water company?

2837 A. Well, there are other items in addition to the telegram.

Q. Well, I am asking you about this particular item of 97 cents not because of the amount involved but your reason for excluding it?

A. Suppose the telegram should say it was not on the business of the water company?

Q. Well, I defy you to show that it was not on the business of the water company?

A. Well show me the telegram?

Q. I have not the telegram?

A. Then there is no evidence produced to show that the telegram was on the business of the water company.

Q. And you don't treat the fact that it is on a voucher of the company and on the books of the company as being on business of the company?

A. Well there are a great many charges on the vouchers and books that are not strictly business of the company.

Q. And you say that this is one of them?

A. I don't know, I haven't seen the telegram.

Q. Well how about the other item of $13.23; is it $13.23 or $13.73?

A. It is $13.23, made up of telegrams and expenses paid at Boston from the drawer, and other items taken from this voucher of April 2nd, 1900.

Q. What year do those expenses properly apply to?

A. The date would indicate that they belong in the year 1900-1901 as of date April 2, 1900.

Q. Did you examine to see?

A. Well, the date of this voucher is April 2, 1900, and we are talking about 1900 and 1901.

Q. Now look to the Treasurer's first book page 98-P, $13.73 made up of sundry small aggregates and applying to the year 1899-1900; which is the item that you refer to?

A. No, sir, it is not; the item I refer to is made up of this April 2, 1900, containing charges to William Wheeler as surety

2838 $60.00, salary as Secretary $50.00, services of F. L. P. service pipe and expense records and other small items and also the salary of Mr. Wheeler for a quarter, $225.97.

Q. Where is it on the books?

A. I got this from the voucher.

Q. Well, where is the voucher?

A. If you will get me the number of it I will locate it.

Q. I will ask you to look it up, if you can?

A. I will see if I can find the voucher number; I think I can.

Q. On page 99 of your deposition you state the amount of con-

struction during the year 1900-1901 as shown by the estimates of William Wheeler to be $79233.55 as shown by page 106, Volume "1" of his deposition. You further state that this excludes $13419.76 as the 20% item of engineering, contractor's profits and risks and interest on money. Where on page 106 of Volume "1" do you find any warrant for your statement that the 20% allowances are excluded?

A. The answer should have stated that this amount included $13419.76 as the 20% item for contractor's profits, &c., which divided up is $3834.24 for engineering, $7668.48 for contractor's profit and $1917.12 for interest on money. This amount of construction $79233.55 is found on page 106, Volume "1" of William Wheeler's deposition.

Q. On page 99 you state, referring to the Lonsdale plant, the vouchers applying to it, that you didn't get those vouchers, didn't find them in the office and didn't understand that they were there. I wish to ask you if you adhere to that statement now?

A. No, I have had the vouchers since and ran through them on yesterday.

Q. You didn't ask for them at the time you made your original investigations?

A. I cannot recall whether I did or not. I had some discussion about the Lonsdale-Beaumont records and elicited the in-
2839 formation that the books had been burned up, the bills and perhaps other papers. I don't recall what was ascertained as to these particular vouchers; I don't think I have seen them until yesterday.

Q. On pages 100-101 of your deposition you were asked a question based upon Mr. Kimball's testimony that 3500 feet of 12 inch pipe was taken up in the Fall and Winter of 1900-1901 out of what is known as the gravity line of pipe extending from the Pump Station to the Lonsdale Springs and upon the fact as stated that it appears that $559.00 was actually paid for this work. Where does Mr. Kimball show the time when this pipe was taken up?

A. In his answer at the bottom of page 168 of his deposition where he states that "3500 feet of 12 inch cast iron pipe of the gravity line above mentioned was taken up in the Fall and Winter of 1900."

Q. Now where does it appear that $559.00 was actually paid for taking up this pipe?

A. On page 99, Volume "2," Mr. Elbert Wheeler states that the excess of expenses of 1900-1901 appear to be due largely to the expense of removing the Lonsdale-Beaumont gravity pipe line. When asked what was the amount of expense incurred in its removal, he answers $559.54.

Q. Now please look back to the preceding question, being the first answer on page 99 of Mr. Wheeler's deposition and see if that doesn't refer to the year 1900-1901 only?

A. He says, as I quoted in the last answer, that the excess of expenses for 1900-1901 appear to be due largely to the expense of re-

moving the Lonsdale-Beaumont gravity pipe line, which Mr. Kimball says was taken up in the Fall and Winter of 1900.

Q. Now did you look to the books to see what the real expense of taking up that pipe line was?

A. No, sir, I didn't refer to them for that purpose, but
2840 I think I noticed it. On page 497 of General Wheeler's book he has an account "expense L-B gravity line and a charge on that account of $559.54, March 31, 1901."

Q. Are there not other items of expense in taking up that pipe line?

A. Oh yes this account runs away down into 1902 and aggregates $2772.37.

Q. You mean for taking up the Lonsdale gravity pipe line?

A. I hav-n't investigated to see what the account consists of.

Q. I asked you what the expense or cost of taking up the gravity pipe line is as shown on the books?

A. On page 254 to which this charge is referred is an entry "expense L-B gravity line, to expense correcting sundry cash entered wrongly" credited $559.54.

Q. Is that all there is of it?

A. That is all there is of that entry.

Q. Now what other expenses?

A. Expense of L-B gravity line as charged to construction in another entry $2338.03.

Q. I am not asking you about those things; I am asking you about the cost of taking up the Lonsdale-Beaumont gravity line only, and don't you find on the books that there are five items, the actual cash cost of it aggregating $780.41?

A. No I don't find any such item on the books in the charges.

Q. I ask you if there are not five items aggregating that?

A. I don't know. I might pick out five such items. I never traced the accounts. I simply used Mr. Wheeler's statement of that expense at the time as set out on page 99 Volume "2" of his deposition.

Q. Now please look to page 497 of Mr. Elbert Wheeler's second book and see if there are not seven items there under the heading "Expense L-B gravity line" and say if the third and seventh
2841 of those items are not simply closing items at the end of the years?

A. Yes sir that appears to be a fact.

Q. Now the other five items are the actual cash cost of taking up this gravity line, are they not?

A. The other five items charged on this account aggregating $780.41 may be for that purpose; I would have to investigate to say.

Q. Well you have got the book there, suppose you look and see if that is not a fact?

A. I have investigated this account and of these five items, one of which is $559.54 explained by Mr. Elbert Wheeler in his deposition page 99 Volume "2" he states is for expense of taking up this gravity pipe line. Of the remainder of the items $86.31 are shown by the books as being for expense of taking up gravity pipe line

and the other items, aggregating $124.86 simply say "expense of L-B gravity line" without explaining for what purpose the expense was incurred.

Q. Well are all under the same account?

A. They are all under the account of "Expense L-B gravity line, but the character of the expense is not disclosed in the items.

Q. Those five items aggregate $780.41?

A. Those five items made up with several other items make this aggregate.

Q. Now upon the assumption that that $780.41 is the expense of taking up the said gravity line, the amount of the pipe being 3500 feet, what would be the cost per foot of taking up that pipe?

A. If you will change the amount $559.54 to $780.41 and let the footage, 3500 feet remain, the price per foot would be practically 22.3 cents a foot.

Q. And William Wheeler's estimate of the cost of taking up 12 inch pipe is 22 cents a foot, isn't it?

A. Yes sir that is in his schedule.

Adjourned until 9:00 A. M. Wednesday morning, November 18, 1903.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

Q. Mr. Nixon you were asked whether or not you located the 3500 feet of 12 inch pipe taken up from the Lonsdale gravity line in the supplies account. You say that there were 3300 and more feet of pipe of that size in supplies account, but you don't know whether it was this pipe or not. How much 12 inch pipe was on hands March 31, 1900?

A. I would have to examine the stock account before I could answer this question. The account of supplies on hand March 31, 1900, shows 1180 feet of 12 inch cast iron pipe.

Q. At what was that listed a foot?

A. $1.05.

Q. Did you see how much was on hand of this 12 inch pipe March 31, 1902?

A. The account, supplies on hand March 31, 1902 shows 303 feet of 12 inch pipe at 95 cents.

Q. The record also shows considerable 12 inch pipe purchased and laid in all these years, doesn't it?

A. I suppose so, though I have not particularly investigated that point to answer accurately.

Q. It would be practically impossible, would it not, to trace from any records the source from which pipe on hand at any particular time came?

A. It might not be impossible, but it would be very hard to do by one who was not connected with the work and familiar with the handling of this material.

Q. I notice that you made no changes in the "Alum" or "Filter Station" account for the year 1900-1901; why was that?

A. As to the alum, the quantities on hand at the beginning and end of the year were substantially the same, and the purchases and amount used also corresponding, so that I saw nothing abnormal in the alum account for that year, or nothing to object to, and I might make the same answer in regard to the account of expenses at high service and filter station for that year.

2843

Q. You find both of those accounts normal?

A. Yes sir that is the way I seem to have classed them.

Q. On pages 102 and 103 of your deposition you reduce the operating expenses from the amount of $37003.25 as stated by the Treasurer, Elbert Wheeler, to $29688.91, or a reduction of $7315.74. I suppose you adhere now to that conclusion?

A. I appear to have increased my amount of operating expense for the year to $29738.91, the change being in the repair account, and $50.00 that I don't locate just now unless it is in the footings.

Q. Was that increase made in your original deposition?

A. The change appears not to have been made in my original deposition.

Q. With this change of $50.00 you adhere to your result as shown in the table on page 103 of your deposition, as I understand?

A. Yes sir, I am aware of no reason why it should be changed or modified.

Q. I will ask you to turn to page 256 of the Treasurer's book where the Profit and Loss account is journalized and ask you if from the total of $106389.24 as there shown, to subtract those items not strictly operating accounts such as are not being inquired into, being the amount of abatements $4502.01, interest $30070.57, rebates $327.65, surplus $34485.76. These four amounts aggregate $69385.99, and say whether or not this subtraction leaves $37003.25?

A. The amounts indicated in your question are found on page 256 of the Treasurer's book and the addition and subtraction recited produces the result that you indicate being $37003.25.

Q. That last amount is the amount testified to by the Treasurer as the operating expenses for the year 1901-1902, isn't it?

A. Yes sir that is the amount he shows on page 8 of his deposition as being the operating expenses of the entire plant for that year.

2844

Q. So that somewhere in the Treasurer's statement of operating expenses must be contained all the items shown in this book account of Profit and Loss except those above subtracted?

A. Yes sir the calculation indicates that the differences pointed out are contained in some of the accounts.

Q. An examination of this book account of Profit and Loss items, disclosed items of painting standpipe $134.33, reservoir repairs $78.30 and Hawley Downe Draft Furnace Company $42.97 which together amount to $255.60 and if added to this same book account of repairs, $2669.19 would make the Treasurer's statement of $2924.79 correct, would it not?

A. Yes sir these accounts added to the repair account on the books would make the same amount that General Wheeler charges on his table.

Q. As to your reduction in the item of insurance $97.50 I assume that your former replies on this subject state your position in regard to this item?

A. Yes sir my objection to these charges is the same as for similar charges in the two previous years.

Q. Turning to page 426 of the Treasurer's accounts on the debit side between March 31, 1901 and March 31, 1902, leaving out the stock account, I will ask you if the remaining five items going to make up the account don't aggregate $3948.96?

A. They do.

Q. This is the amount that the Treasurer deposes to in explaining the change in the system of bookkeeping about this time on pages 93 and 94 of his deposition, is it not?

A. Yes sir.

Q. And leaving the book cost out of consideration, it is the actual cost in dollars and cents of the pumping station account for this year, isn't it?

A. No sir.

2845 Q. What do you make the amount?

A. I make the actual expense for this department for that year $3642.65 being $306.31 less than the amount stated by General Wheeler.

Q. How do you make the difference?

A. The difference arises from treatment of the supplies on hand at the end of the year; General Wheeler making the reduction or difference from this source $654.78 while I make it $961.09 using the supplies on hand at the end of the year carried to supply account $553.33 and to new pumping machinery account $1100.85, making a total of $1684.15 from which I have deducted stock on hand at the beginning of the year $693.09, leaving a balance or excess of stock $961.09 for this year which is $306.31 greater than the amount used by General Wheeler.

Q. You use an amount now of $693.09. You have reversed the figures hav'n't you; oughtn't it to be $639.09?

A. No sir it should be $693.09 the amount of stock on hand at the end of the previous year which was brought over into this year.

Q. Now Mr. Nixon you have, in reaching your conclusion on this point, not been content to take the book account but have taken into consideration the stock account also which does not appear on the books, is that so?

A. Yes sir I found that all the stock on hand at this station was not shown on the books.

Q. Now if you leave the stock account not shown on the books out of consideration, isn't it a fact that the amount testified to by the Treasurer is the actual cash cost of operation that should be charged to this account for this year?

A. Yes sir if I should handle these amounts in the same way the Treasurer has, I would reach the same amount.

Q. Well you are seeking to find the actual operating expenses, are you not?

A. Yes sir, and this is why I didn't follow the Treasurer's
2846 method.

Q. Don't the Treasurer's amount state the actual money paid out for operation on this account?

A. His account shows the actual money paid out on this account for that year as $3316.31 for wages, $98.03 for expenses and $532.22 of other items, making a total of $3946.56, which together with $2.40 of items of supply account and $693.09 stock on hand at the beginning of the year makes the aggregate of $4642.05 charged to this department during the year under investigation.

Q. In addition to this you say you have excluded $767.64 more of the repair account, and cite as the first item making up this amount $25.00, being a part of the $75.00 bill of C. A. Rosenbeck, which $25.00 you say is improperly charged to repairs. From what account would you allow the water company to pay this $25.00?

A. I have stated that several of these items are properly construction or maintenance items, but this matter of painting is an intermediate expense that probably is more properly covered by the replacement allowance or fund that is generally allowed in an investigation of this character. This expense could be allowed as an operating expense, but if so it should be pro rated through the series of years comparable to the term that it would cover, but if such expenses are to be entirely included by either operating expenses or construction costs there would leave nothing to be covered by the replacement or renewal allowance.

Q. Now let me see if I understand you. You say that this item of $25.00 for painting is not one which you would allow to be paid as an operating expense out of the current earnings of the company.

A. No I should not regard it as an operating expense applicable entirely to the expenses of the particular year when this painting was done, if applied as an operating expense at all.

Q. Now how do you class it at present, as an operating expense or otherwise?

2847 A. So far I have made no classification of it, simply eliminating it as an operating expense, and leaving it in the air.

Q. Well do you now admit that it is an operating expense?

A. No sir I prefer to exclude it from operating expenses for this particular year and let it be taken care of in some other more proper manner.

Q. Well now how would you have it taken care of?

A. I am of the opinion that expenditures of this character would be more properly covered by the allowance for replacement or renewal that is usually provided in an investigation of this character.

Q. Don't you think it would be a very unnecessary and unreasonable requirement that the company should distribute an expense

item of $25.00 over a number of years, and if you don't, I will ask you to say over how many years you would distribute this $25.00?

A. The matter of painting reaches a greater aggregate than $25.00 and it could easily be carried into a separate account, or handled easily by several methods. I see no difficulty in handling the expenditure.

Q. You have rejected only $25.00 painting this year as I understand—at least not in this particular item?

A. Yes sir I rejected other items of painting—the standpipe, filter station and pump station.

Q. Is it the nature of the work or the amount of the work that induces the opinion that this should go into a sinking fund account for replacement?

A. It is the character of the work for which the expenditure is incurred; something should manifestly be left for this replacement or renewal fund to cover.

Q. Painting begins to depreciate as soon as it is done, doesn't it?

2848 A. Yes sir like most every other character of work and material.

Q. Painting was done probably on this plant as far back as 1882 or 1883, was it not?

A. I presume that they did some painting around the pump station in 1882 or 1883.

Q. Then to handle work of this description by means of a renewal or depreciation fund, it would be necessary to establish and contribute to the fund from the beginning of the work, would it not?

A. Yes sir I think the accumulation of such a fund should commence reasonably soon after operation is started.

Q. And the contribution to such a fund would of course have to come out of income, would it not?

A. Oh yes, this fund would be accumulated from the net earnings of the plant.

Q. Now in your analysis of allowances for operating this plant in the years 1899-1902 inclusive, how much have you allowed in addition to operating expenses or as a subtraction from income to fill and maintain such depreciation fund?

A. I have not attempted to make up or provide such fund, leaving the surplus in excess of operating expenses for those years to care for such contingencies.

Q. Your answer then is that you have allowed nothing on this account?

A. No sir I did not understand that an allowance of this kind was in the scope of my investigation, as this is more a matter of judicial determination or law than the investigation I was making.

Q. Now Mr. Nixon would you allow the water company to pay any repairs at all out of its current income. I don't mean that you do do it in your statements, but would you as a matter of proper practice allow it?

A. I would and did in this instance allow $1992.82 for
2849 this year for repairs.

Q. I don't care what you did in your statement. It is entirely foreign to my present purpose. Now what class of repairs would you allow to be paid out of current income?

A. Every character of repair that I considered was properly a repair item and not a construction or new property or extension to the plant expenditure.

Q. That of course compels me to ask you what you consider a repair expense?

A. If I had time to analyze this account I could show you just what I allowed during this year, but in a general way I would say every character of repair or maintenance expense that is not manifestly a construction item or extension expenditure.

Q. Now is repainting a standpipe a construction item?

A. No sir I don't think so, because a standpipe is painted by the contractor usually in the first place, but when necessary some years afterwards I should think that it would be an expense more properly coming under the replacement fund.

Q. Suppose a hydrant freezes and cracks open and must be replaced, what do you consider that?

A. I should regard that as a repair expense, as it would be cared for by the general repair crew that is maintained by the company as an operating expense, the company carrying a regular pay-roll of plumbers and helpers to meet such contingencies.

Q. Suppose a piston rod in the engine wears out and is replaced is or is not that a repair?

A. I should regard that as a repair item.

Q. Why is that any more a repair item than the painting?

A. Because they are different characters of expenditure, and are complicated with more urgent and active necessities—the re-
2850 placement of the piston rod would be necessary to maintain the water supply for the City—the painting of the standpipe, while a necessary precaution, is not attended with such urgent demand for immediate expenditure.

Q. What do you understand by the term "depreciation"?

A. In what sense and applicable to what work or material?

Q. I mean as the word is used generally in connection with a water works plant?

A. Mr. William Wheeler has furnished a very elaborate and extensive explanation of "depreciation" of several different varieties——

Mr. CALDWELL: I object to that if the court please? I ask that the answer be excluded. I am asking the witness for a definition of depreciation and he is referring to Mr. Wheeler's definition.

COMMISSIONER: We don't care for any comments of Mr. Wheeler's deposition, we want to know what you think of it? It is for you to answer?

A. —to-wit; culminated and complete depreciation, going or existing depreciation, &c. Now if you will kindly define what kind of

depreciation you inquire about, I will endeavor to answer your question?

Q. Do you know what the term "depreciation" as applied in a case like this means?

A. In general terms I should interpret it as meaning wearing out of property or materials, or the return of the same to their original elements—iron going into rust, wooden materials into dirt, &c.

Q. Have you anywhere in your statements presented in this case, made any allowance for depreciation?

A. No sir I have left this branch of the subject to go with
2851 the renewal or replacement allowance.

Q. How much have you allowed for renewals?

A. I have left the entire surplus each year over and above operating expenses to cover such allowances and other apportionments as may be fixed by other authorities.

Q. It is a matter of calculation, isn't it?

A. No sir it is more a matter of determination as we found in making our comparison of existing value with cost of new work, though there is some calculation necessary.

Q. It is a matter upon which the opinion of expert witnesses has been taken in this case?

A. Yes sir the subject has been very elaborately discussed in this case by some of the witnesses.

Q. But you have given it no consideration at all, have you?

A. In ascertaining the proper expenses for the operation of the plant for the three years I considered this subject was entirely excluded as not coming within the scope of my investigation.

COMMISSIONER: Do you deny the percentages of depreciation claimed by Mr. Wheeler as reasonable?

A. I heretofore testified that some per cent. should be allowed to cover such contingencies, and the witnesses in this case have discussed percentages from one to two per cent., neither of which I am prepared to say is unreasonable under the respective conditions.

Q. And this allowance should be made from the beginning of the plant, should it not?

A. I think the accumulation should begin within a few years of the beginning of operations, not necessarily at the very beginning while everything was entirely new and the business of the company and its income fully established.

Q. Can you define to the court in a general way "depreciation" as compared with repairs, or say in general terms what should
2852 go to renewal account, which you say should be two per cent. or less, or what should be allowed in repairs account as payable out of current earnings?

A. I regard repairs as a necessary expense to maintain the plant in successful or practical operation and renewal or replacement as providing for furnishing of parts of the plant that have become obsolete by make, or worn out, or abandoned as the different elements of property that have been enumerated as covered by depreciation in this plant, such as pumping engines that have been substituted, boilers that have been renewed with later patterns and more productive and economical capacities, and items of that class.

Q. Don't you think it would be a fair definition and distinction of the two to say that repairs should include such minor or comparatively small items of necessary expense in maintaining the works as the income of the company would reasonably bear during the year, and that renewal account should include such larger items as would tax or burden the income for the year?

A. No, I have no objection to adopting this definition as it is in substantial accord with the explanation that I have been endeavoring to make of the distinction between these expenditures.

Q. You have disallowed as a repair charge an item of $138.50 of B. B. Dallas for making and erecting breeching for boilers. Doesn't the voucher show that this charge was for making and putting up breeching to old boilers?

A. As the voucher states that it was breeching for old boilers, which I understand to be the smoke connections for the two 54 by 16 feet boilers that were moved or changed in position, and as there is a charge in construction of $440.00 for connections for these boilers in addition to the $500.00 for moving them it appears
2853 that this expense had been already more than covered.

Q. When were those boilers moved?

A. I failed to take the date when they were moved. My memorandum says they were originally installed in 1889. What is the date of the voucher?

Q. It is in June 1901?

A. Well I understand they were moved since the Boston boilers were installed. This is the information that I elicited from the Chief Engineer if I correctly understood him.

Q. If those boilers were not moved at the time you understood and this was replacing the old breeching by new breeching and had no connection with the moving, would you still disallow this item as a repair account?

A. Yes sir if the statement of the date as you recite is correct, it strengthens my position in the matter, as there is such a large amount charged for these connections in construction account that this amount is certainly much more than covered.

Q. Well now what is the reason you disallow it as repair account, on account of the large expenditures which you think were made in moving these boilers and resetting them?

A. No I excluded it from current operating expenses as not a proper repair item, and also from the fact that the expenditure had already been more than covered in the charges for this character of work in construction account.

Q. Well where do you place this $138.50, in construction account or in renewal account?

A. I didn't place it after excluding it from operation expenses, but assume it is already in construction account as the construction charge is ample to cover it.

Q. You mean so much was expended on what you term construction at the time of the supposed removal of these boilers that you will not on that account now allow this as a repair item?

A. No sir, standing alone I regard it as a construction
2854 expense and not a repair item, regardless of the large amount charged to construction for smoke connections at pump station.

Q. In the ordinary and general meaning of the word, wasn't this a repair of those boilers?

A. No sir, it could have been a renewal or substitution or replacement of smoke connections.

Q. Well now, my question to you was, where do you now place this, as a construction item, a renewal item or a repair item?

A. I simply excluded it from the current operating expenses as a legitimate repair item, and left it unplaced.

Q. I didn't ask you what you had done, but where you put it now; that is to say, to which of these three accounts you assign it?

A. I think I should leave it where I assume it is in fact located—in construction account.

Q. Do you mean to say that this $138.50 for this breeching, has, as a matter of fact been included in construction account or that you think that the amount in construction account is charged enough to include it?

A. I think the charge for this character of work in construction is more than ample to include this expenditure.

Q. Then your position, as I understand it, is that this item of $138.50 has not been charged anywhere in the books except on the repairs account, and that you reject it as a repairs item, and will not even include it in the construction account because there are already large charges in that construction account in connection with these boilers?

A. No, I simply excluded it from the operating expenses as a proper repair item, and as I did not make up any construction account, of course I did not include it in that account, or give the item further consideration after its elimination.

Q. Well now, if you were making up a construction account, would you add this item to those already in the account, or would you leave it out entirely?

2855 A. If I was making up a construction account I would investigate the dimensions and extent of the smoke connections and give this part of the work consideration along with the smoke connections from all the boilers, just as we did in making up our statement of cost of replacement. We measured all the smoke pipes and calculated the weight of the metal.

Q. Now have you at any time in your deposition or in your labors in this case made up a construction account of the cost of these works from the beginning?

A. No indeed.

Q. You reject an item of $98.00 of Rosenbeck's for painting the inside of the Pump Station because it is improperly charged as an operating expense. Does that go into the renewal account or construction account?

A. I eliminated it from operating expenses and would let it go with the other painting——

Q. As a renewal item?
A. —as it may be finally located.
Q. Would you locate it as a renewal item?
A. I have stated in a previous answer that I regarded expenditures of this character as more applicable for covering by the renewal or replacement allowance.
Q. In your deposition I think you say it is a construction or maintenance item. What do you mean by a maintenance item?
A. Such items as we are discussing other than repairs.
Q. What is the voucher number of this bill of $98.00?
A. Number 1445.
Q. There is an item of painting Filter Station $70.00 by A. Greenwood. Do you treat that as the last item we have been discussing?
A. Yes sir I have stated it is not properly in repair account.
Q. How much painting was done this year?
A. My recollection is there was about $1000.00 worth.
2856 Q. In 1901-1902?
A. Yes sir including the Lonsdale standpipe and the painting charged in construction account—all the painting.
Q. As I don't agree with you as to the extent of it I will have to ask you to show the items?
A. I find $134.33 which is some standpipe painting, as I recall it was the finishing of the filter station standpipe, and $75.00 of painting of which $25.00 was charged to repairs at the Pump Station, and $98.00 to Rosenbeck at the Pump Station and $70.00 to Greenwood at the filter station, which makes an aggregate of $377.00 and as I remember there was an expense of some $600.00 for the Lonsdale standpipe, as I recollect, but I don't remember accurately whether it was for this year or not.
Q. Well I wish you would look at the book and see of it is not for the next year?
A. Yes sir I find $455.00 for painting standpipe in the next year, which I assume is not included in this year as was my impression.
Q. So that the painting expenses for this year are $331.00, are they not that are charged to repairs?
A. The painting charged to repairs for that year appears to aggregate $327.33 and the other painting perhaps going to construction.
Q. Why did you disallow the item of $14.14 to the Southern Brass and Iron Company for pipe covering?
A. Because I think it properly goes along with the painting as it is not properly a repair item but an expenditure for material that is expected to last more than one year.
Q. Can you name any expenditure in the way of repairs that would not be expected to last over one year?
A. No, the most of the repairs would be expected to last more than one year, but pipe covering is a material that would be
2857 expected to last as long as the steam pipe upon which it was used, and should last several years.
Q. Don't you think it unreasonable to require the company to distribute an amount less than $15.00 through a number of years?

A. I do not consider that the amount affects the principle upon which the division of these expenditures is undertaken to be based. The character of the work and material should govern more than the amount.

Q. What was this pipe covering made of?

A. I didn't investigate. I assume it was asbestos or magnesia.

Q. That is a sort of asbestos or magnesia paper, isn't it?

A. No sir it is more of a mortar or plaster; sometimes felt covering is used. I didn't examine this particular covering.

Q. Turn to page 420 of the Treasurer's account, which page is headed "High Service and Filter Plant." I will ask you if the four items making up the debit side of this account for the year in question do not add up $2447.53 with a credit item also shown of $3.50, leaving a net amount of $2444.03?

A. Yes sir by this calculation, you can reach this amount.

Q. Then you eliminate the stock items entirely and look only to the cash paid out on this account, said amount is $2444.03 and not 2364.81?

A. Yes sir the difference between me and General Wheeler on this account for this year consists in the use by me of the additional stock carried to supply account from this department for this year.

Q. Now if the stock on hand at the beginning of the year was $142.40 and at the end of the year $24.97, this would indicate that the difference between these two amounts or $117.43 had been used above what had been replaced, would it not?

A. Yes sir, but the stock account shows that $196.65 was carried out of this account for this year to the supply ac-
2858 count.

Q. Why therefore is not stock consumed a part of the cost of operating this part of the plant?

A. It is, and I have allowed it the same as the cash expenditures.

Q. My question now pertains to what is shown upon the books, and I ask you that if adding this $117.43 to the actual cash outlay of this plant doesn't make $2561.46, the same amount given by the Treasurer and shown by the books of the company?

A. Yes sir if you take into consideration the credit of $3.50.

Q. Now I wish you to explain to the court why it is you disallow as an expense item the cost of a typewriter, $91.50?

A. I disallow it as an operating expense as applicable entirely to this one year and if it is not a property account chargeable to office furniture or fixtures and is allowed as an expense item, it should be distributed over more than one year, just as if the company had bought a safe that year, or other office furniture or equipment.

Q. You say in your deposition "I think that it should be distributed over a number of years."

A. Yes sir I say if an expense account it should be distributed through more than one year.

Q. Well isn't it an expense account?

A. Well that depends upon the system followed. Some institutions would charge an expenditure of that character to office furni-

ture or office fixtures and then at the end of the year would charge off the depreciation to expense account.

Q. Isn't is as much expense account as pens, ink and paper?

A. No, a typewriter is a more permanent instrument than pens, ink and paper that are rapidly used up.

Q. You didn't allow anything for this year, 1901-1902 on account of this typewriter in operating expense, did you?

2859 A. No I simply excluded it.

Q. The voucher shows that it was replacing an old typewriter?

A. I don't remember that I investigated the voucher, as the amount is so near the cost of a new machine, it would indicate that the old typewriter wasn't valued very highly.

Q. You disallow expenses of trips by William Wheeler to Washington, a trip of William Wheeler to New York, &c., making a total charge of $440.96 charged to expense account, and give as your reason that it does not appear that any benefit resulted to the company from these expenditures. Is that your sole reason for disallowing these items?

A. That was one of the reasons and another is that the expenses are so extravagant for a simple business trip, that some explanation, if of benefit to the company, should be furnished, or the items or vouchers covering such large expenditures and explanation against the assumption that these trips involved other business than that of the Knoxville water company or expenditures for other purposes.

Q. It may be somewhat a question for the court, Mr. Nixon, but I would like to know when you find these vouchers of the company whether you think the burden of proof is on the company to sustain its vouchers or upon the other side to impeach the vouchers?

A. In an investigation of this character to determine the proper and legitimate expenses of operating the plant, I consider an explanation due to cover such extravagant and unusual expenditures proposed to be charged, so as to justify, if possible, the inclusion of the same in the operating expenses of this plant as against a reasonable schedule of water rates.

Q. In order to get at your point of view of this matter, do you understand that it was your business as a witness to determine the reasonableness or unreasonableness of a charge of this kind, or to investigate the facts and state the facts to the court as a

2860 witness?

A. No, I wasn't attempting to pass upon the reasonableness or unreasonableness of the rates, but the unreasonableness of this charge was so apparent that it convinced me that it should not be included as a legitimate operating expense without an explanation of these extravagant charges.

Q. You deducted the whole $440.00 from the expense account?

A. Yes sir until explained that the same was on the business of the company, and to its interest, and these great expenditures legitimate.

Q. Don't you understand that in rejecting an item of expense be-

cause unexplained you were doing what the court must do in this case?

A. Well I have rejected this item and it will now be passed up to the court with the information and explanation, if the company desires to make such, and let the court decide.

Q. Why did you deduct the whole $440.00 from the expense account?

A. Because the amount was so glaringly excessive that it appeared to me it should be explained.

Q. You say that the expense account is charged on the book with a certain amount. Is the expense account charged on the books with this $440.00?

A. My answer in stating that the expense account is charged on the books and by Mr. Wheeler's statement at the same amount, was in following out the comparison that had been in progress during the examination, and as to the latter part of your question I understand of course that this $440.96 is included in the expense account.

Q. I wish you would look at the book and see whether it is or not. I refer you to the first line on page 25 of the cash book?

A. I find two amounts on the cash book aggregating the same as this charge, which purports to be evidenced by voucher #1376, which if I could see would settle the question as to how the
2861 amount is distributed.

Q. Don't the cash book show?

A. I don't know whether the cash book is treating of this charge or not, although the two amounts would aggregate the same amount.

Q. What does it show in respect to where the items are charged?

A. The cash book shows that voucher #1376 had been paid to William Wheeler of which $378.46 was to construction and $62.50 to expense account. I may have taken my memorandum from the voucher.

Q. Now I hand you voucher #1376?

A. Voucher #1376 which appears to cover this item has a pencil distribution of $378.46 to construction and $62.50 to expenses. The voucher stating expenses appears to have misled me into the conclusion that it was all charged to expense account as the distribution is abbreviateed and small, and did not attract my attention before.

Q. Then the first two items which are charged to construction aggregating $378.46 have never been in the expense account and should not be taken from it, should they?

A. No sir the deduction of this amount was a mistake on my part and is not proper.

Q. Now Mr. Nixon the first item of this voucher which is charged to construction is $270.00 for a nine day trip of William Wheeler to Washington and Knoxville; the second item is expenses "on ditto" $108.46. Those are the items that you object to as "extravagant" ar-n't they?

A. Yes sir in consideration of the fact that a salary was being paid at the time.

Q. The first of the two items on this voucher charged to expense is $40.00, trip to New York, conference Col. Henderson counsel for

Southern Railway Company one and one-third days. Do you regard that as extravagant?

A. Yes sir that appears to me to be a very extravagant
2862 charge. A trip from Boston to New York would only cost . say from $10.00 to $15.00.

Q. Do you regard that $40.00 item as so excessive that you now exclude it from the expense account of the company?

A. No I would let the whole account go as charged to expenses, $62.50, if proper for a salaried officer of the company to charge additional salary for services.

Q. You next deduct an item June 7th, 1901, paid to F. C. Kimball for expenses to trip to Boston with a side trip to Providence and Nashville, $148.30. Providence is in the state of Rhode Island, isn't it?

A. The biggest Providence I know of is.

Q. And Nashvile is in Tennessee?

A. The largest Nashville is.

Q. What do you find excessive in this item covering a trip to Boston, to Providence and then to Nashville?

A. I don't appear to have criticized the amount of these expenditures.

Q. Well why did you reject it from the expense account?

A. I rejected it for explanation as to whether a proper operating expense, assuming that it was on business pertaining to this litigation that should have been properly charged to water rates litigation and have the consideration of the court along with other charges of that character.

Q. Did you read General Elbert Wheeler's explanation of it in his deposition?

A. I don't recall that I did or that it impressed me if I saw it.

Q. So you rejected it for explanation?

A. I saw or heard that it was a trip taken with the general counsel of the company and this led me to the assumption that it was on account of this litigation.

Q. And if it had been on account of this litigation, you
2863 would not allow it?

A. No, if it was on account of litigation it would have been properly chargeable to water rates litigation and not carried to operating expenses.

Q. You reject a $20.00 item, May 15, 1901 A. Greenwood and company for painting and papering the office and charged to expense account. This charge you seem to think should be made to office building and is not an operating expense. Now what was that work?

A. I don't know; I presume it was for papering and painting the office, the same character of work that is covered by the property account on the books, termed "Office Building."

Q. Look at the voucher and see if it is not for cleaning paper and finishing floor as per contract in the office building?

A. The voucher is dated May 15, 1901 and is for finishing office

$20.00, with an endorsement by Mr. Kimball, "cleaning paper and finishing floor per contract."

Q. Now how would you charge cleaning the paper in the office if not to expense?

A. The other expenditures in improvements in office building was charged to a property account, under the term "office building" and has amounted to some $1810.00.

Q. Those charges were made when the company was building and getting its affairs into shape, were they not?

A. These charges were made when the office building was improved and rebuilt and equipped.

Q. Now Mr. Nixon I am not asking you what had been done by anybody, but I ask you what account except to expense you could charge the expense of cleaning the paper in the office to?

A. I think I would charge it along with the other items of the same character to office building.

Q. Isn't it an expense?

A. Yes sir and so is the depreciation in the other charges in the office building.

2864 Q. Well what would you charge washing the floor to? Would you charge that to depreciation or repairs?

A. I think the charge of Janitor's wages should go to expense account who washes the floor and discharges other services of like character.

Q. Well is that right?

A. Yes sir made no change in that distribution.

Q. You next deduct from expense account an item of $55.00 for lithographing 1000 mortgage bonds. Why do you make that reduction?

A. I rejected both these items of lithographing bonds and stock $55.00 and $42.50 as not a proper expense account, or not a proper item of operating expenses of the water company, but being an expense that should be covered in the category of interest and other items of such character, that should be taken care of by the surplus or net earnings of the company.

Q. You don't mean you would charge this item of lithographing bonds to interest account?

A. No I mean I would exclude it as a proper or legitimate expense of operating the water company.

Q. Why isn't it a proper or legitimate expense?

A. —and let it go with interest and bonds and security transactions that the net earnings or profits of the company are expected to cover.

Q. Ought that item to be $55.00 or $155.00—I mean the item of lithographing mortgage bonds?

A. I appear to have it $55.00.

Q. I hand you voucher #1626; is that the voucher?

A. Voucher 1626 carries a different date and a different amount and has no distribution endorsed thereon.

Q. And is not charged to expense either, is it?

A. I don't know; it don't appear to be the item that I refer to.

2865 Q. Well I want you to identify the item on the books then?

A. My item is dated July the 8th, 1901, $55.00.

Q. And this voucher is dated July the 18th and $155.00, isn't it?

A. Yes sir.

Q. Now I ask you to identify that item on the book and see if you hav-n't got the date and amount wrong, and if you hav-n't been taking off expense account an item that was charged to construction?

A. I find on the book under date of August 29th, a charge of the Forbes Lithographing Company $155.00 under construction account and the other item referred to, American Bank Note Company, immediately following charged to expense account, $42.50 which indicates that I must have made a mistake in taking off these amounts unless there is another bill for $55.00 which I do not appear to be able to find and therefore concede that the deduction of this $55.00 from expense account is not proper.

Q. Now the American Bank Note account for $42.50 is charged to expense; you say in your deposition that it is for lithographing bonds and stock. Now look at the voucher #1627 and see if instead of lithographing bonds and stock it is not for lithographing stock certificates?

A. Yes sir it says printing 500 lithograph stock certificates preferred and also "bound in two books," which I assume I took for bonds, maybe.

Q. It shows that these certificates are numbered from 501 to 1000 inclusive doesn't it?

A. Yes sir.

Q. And that indicates that they were intended for renewals and transfers and not for new issue of stock?

A. Oh I don't know, they might have been so intended and such assumption could fairly be made, though I excluded the amount from operating expense as I thought an expense of this character should follow the expense of bonds and discounts on bonds

2866 and stocks &c. on the books that should not be incorporated into operating expenses—I didn't consider that the people of Knoxville were interested in whether these certificates were lithographed or printed.

Q. You rejected the item in your deposition because it was for lithographed stocks and bonds; now when you find it was for lithographed stock certificates, do you still reject it?

A. Yes sir, it is for handling securities that I cannot regard as an expense of operating the Knoxville Water Works, but should go with the other expenses connected with the handling of the securities of the company.

Q. In a very small item of $1.62, refunded water bill of Harry Galbraith, which you reject as charged to expense account, please examine voucher #1644 and see whether or not that was ever in fact charged to expense acount. I call your attention to the distribution on the back of the voucher?

A. I had no memorandum of this voucher together with some other amounts refunded to Sanford Littleton, and appear to have included the same in the expense acount as were the other items, but this voucher indicates that it was charged to rebates instead of expenses, as the water bills refunded to Mr. Littleton were charged.

Q. Now Mr. Nixon that makes three items that we have found this morning that you have treated as being charged on the books to expense, and have therefore deducted, when as a matter of fact neither one of them ever was charged to expense, isn't that so?

A. Yes sir that appears to be a fact. As the distributions were rather dim on some of them, I no doubt took the memorandums from the vouchers themselves, and appear to have got them mixed as between construction, rebates and expenses.

Q. The books are plain enough ar-n't they?

2867 A. — a scratched item by the side of one of the amounts but I don't think that cuts any figure.

Q. There is another very small item July 1901, Thomas Todd, Boston 250 Knoxville amendments $5.25 without any explanation but charged as an operating expense. Why do you reject that?

A. I don't know what the Knoxville amendments are or what use Mr. Todd had for them and there is no explanation why the expense was necessary in operating the Knoxville Water Company.

Q. Now where is that bill you quote from?

A. I don't know.

Q. Where did you find the item?

A. I found them on a bill voucher, book or something. I didn't know what Knoxville amendments were.

Q. And you rejected it upon the assumption that the company had made an improper payment because you didn't know what "Knoxville amendments" were?

A. Or what Mr. Todd wanted with them.

Q. I would be obliged if you would find Mr. Todd's bill for us we cannot find it.

A. Yes sir I evidently found it or I wouldn't have had it noted. I will look through my other memorandas and see if I can find the number of the voucher.

Q. I- didn't appear to you that it might be amendments of the Knoxville (Water Company) by-laws, written off by Mr. Todd, did it?

A. I didn't know what it could be or what he would want with them or why the water works company required an expenditure of that character.

Q. And those are the grounds of your rejection of this account?

A. Well these grounds and want of explanation for the necessity of the expense.

Q. Suppose we try voucher #1695 Mr. Nixon and see whether or not that which appears to be the bill of Thomas Todd August 19th instead of July for 250 Knoxville amendments $3.25 instead

2868 of $5.25 and see if that is the item you had in mind?

A. Yes sir my original memorandum refers to voucher # 1695 which indicates that it is the bill I had in mind, but my

amount is $5.25 and July 1901, but we will let it go as the same and deduct the $2.00 as the "3" is not exceedingly plain.

Q. I think you have designated mistakes of this kind as made by us as "glaring errors" hav-n't you?

A. I may have done so.

Q. See if this paper is not headed "Beacon Press" thereby indicating it is a printing bill?

A. It is headed "Boston and has got a red sign of "Beacon press" at the top; I don't know whether that means printing or not.

Q. What do you think it means?

A. It might be a newspaper called "Beacon Press" up there.

Q. Would you regard this as a printing bill or not?

A. I expect Mr. Todd is a printer.

Q. Well if Mr. Todd printed for the Knoxville Water Company 250 amendments say of its rules or anything else, do you regard that as an improper expense charge?

A. It might be explained into a proper expense item.

Q. You disallow September 23, 1901 account to A. H. Dailey for injury to mule in construction work $125.00 charged to operating expense. Why do you reject that item?

A. My recollection is the mule was killed in construction work and should have been charged to construction account and not to operating expenses and the item was disallowed on that account.

Q. Now assuming that a cover was off a gate box on the corner of Hill and Gay streets, that this gate box had been set for 10 years or more and at the time when this accident occurred one of a pair of mules belonging to Dailey and being driven to market
2869 put its foot into this gate box and as a result of the injury so received this bill of $125.00 was paid under these assumptions and without regard to General Wheeler's recollection of the matter, would not this be a proper and legitimate charge to expense?

A. Admitting that these assumptions are a recital of fact, I am inclined to the opinion that an expense emanating from such a state of circumstances and combination of facts would be an operating expense and not a construction item. From General Wheeler's statement of the circumstances attending the death of this mule, according to his recollection, detailed on page 102, Volume "2" of his deposition, he states that the injury to the mule was due to its falling in a ditch or other construction work of the company, which led me to the conclusion that this expense was a construction item and not an operating expense.

Q. Let me ask your attention to item of $25.85, date October 1, 1901 costs in the case of Knoxville Water Company against the city charged to expense, which you say should be charged to water rates litigation. This amount appears on the receipt of the Clerk and Master, J. F. Chumbley, voucher #1730 to be costs in the cause of the Knoxville Water Company against the Mayor and Aldermen of Knoxville. I will ask you first if you don't know the fact that Mr. Chumbley is Clerk and Master of the Chancery Court at Knoxville?

A. I assume that that is true although I do not know the gentleman.

Q. And you know also that none of this water rates litigation, either the present or preceding suit was in the Chancery Court of Knox County, don't you?

A. No sir I do not know what courts it was in; there seems to have been litigation in all the courst, but in this instance
2870 it appeared to be a litigation item that should go, to litigation account and not to operating expenses.

Q. You mean you would not allow any court costs, no matter where incurred or on what account to be charged as operating expenses?

A. I don't think litigation expenses with the city at least are proper operating expenses to be allowed in this investigation and have my doubts about the propriety of some other litigation expenses.

Q. You next reject $14.50, under date January 4, 1902, copy of briefs, voucher # 2002 which I hand you and ask you to examine and see if it is not the item you refer to, and see if it has not been distributed to Water rates litigation, and if it is not the fourth item that we have found this morning which you have taken from expense account which was never charged to expense account?

A. I suppose this is the item, as it is the same amount, though of a different date, and as it was payable to Mr. Edington, I assumed it was connected with the litigation of this case, and therefore thought it was properly in water rates litigation, and in explanation of some of these errors in the distribution I will say that there were $623.37 of items charged to, expenses that were afterwards charged to water rates litigation and taken out of the expense account, which explains some of this confusion, and my taking the memorandums from the vouchers themselves.

Q. Neither one of these four mistakes which you have admitted this morning can be accounted for in that way however?

A. This one can very clearly.

Q. I wish you would look to the back of the voucher and see what it is distributed to and then I wish you would look at page 39 of the cash book and 25th line and see how it is entered there?

2871 A. Yes, sir, it is charged to water rates litigation on the books.

Q. And it never has been transferred?

A. I presume not. There is an item of $14.21 in the items transferred.

Q. You have a list of those transferred items in the handwriting of Mr. Kimball made out by him and furnished you, haven't you?

A. I think I obtained such a statement. I have the amounts here now.

Q. Taking up your disallowances of William Wheeler's accounts of $218.27 and $269.45, voucher # 2101 so far as it relates to the expenses appears to be for William Wheeler's expenses to New York, second trip $17.90, for a trip to Washington $38.60, $6.77 for sundry telegrams account, $155.00 for making, and renewing tracing

pipe plans in the Knoxville office, these making up this amount of $218.27. The other voucher # 2290 so far as it relates to expenses is for renewing tracings $258.65, blue prints $4.72, sundry postage, Internal Revenue expense, &c., $6.08, making a total of $269.45. Now why do you disallow any of those items?

A. Voucher # 2101 is for $671.32 of which the expense account is charged with the items you have enumerated, but it appears to have been largely necessary in giving the employés of Mr. Wheeler's office at Boston something to do, and not a necessary expense of operating the plant at Knoxville, as Mr. Kimball had an assistant on a salary paid out of operating expenses that could have made these tracings and copies without this extravagance. Voucher # 2290 is for $626.54 of which $269.45 has been charged to expenses incurred at Boston in stamps and services of Mr. Wheeler's employés that appear to have been entirely unnecessary in the operation of the Knoxville water works as these tracings, copies, &c., could have
2872 been done here by the employés of the company on salaries paid by operating expenses without this extravagance.

Q. Do you mean either as a statement of fact or as an expression of opinion to say that Mr. Wheeler caused this work to be done for the purpose of giving his employés something to do?

A. No, this is an assumption from the description of the work and from the services disclosed by the bills, and the further fact that the expense was so absolutely unnecessary to the operation of the water works at Knoxville, that it looks like they lay awake at night in Boston in order to study up some expense to add to the plant here.

Q. You really don't mean do you what you have said in the last two or three lines of your answer?

A. No, you may take it in a Pickwickian sense, if you desire.

Q. Then why did you put it in?

A. Because the practice is so at variance with the management of other corporations where economy and reduction of expenses are studied instead of the increase of the same.

Q. Do you regard it as proper conduct on the part of a witness under oath to make reflections upon the integrity of Mr. Wheeler even in a Pickwickian sense?

A. These bills appear to me to justify criticism as to their propriety.

Q. If your criticism means anything, it means that Mr. Wheeler was guilty of fraudulent conduct both as to the Knoxville Water Company and as to the public in this litigation, don't it?

A. Yes, sir, I should regard the payment of such useless and unnecessary expenses as unjust to the people of Knoxville.

Q. Are you willing to answer my last question directly or do you prefer your answer to stand as it is?

A. I think my last answer fully replies to your question, though I am not charging Mr. Wheeler with fraud but criticizing
2873 the method in the creation of these expenses.

Adjourned until 9:00 A. M. Thursday morning, November 19th, 1903.

THURSDAY MORNING,
November 19th, 1903—9:00 o'clock a. m.

Continuation of cross-examination of W. M. NIXON.

By J. W. CALDWELL:

Q. Mr. Nixon how do you make the difference of $40.00 between your statement of Alum purchase and that shown by General Wheeler?

A. This difference arises from copying the figures, as I do not appear to have made any deduction in the Alum account, and perhaps this discrepancy accounts for a part of the $50.00 I was unable to locate of this account.

Q. Where you say on page 104 that you have excluded items amounting to $767.64, do you mean that that is to be taken from the book account of repairs or the Treasurer's deposition?

A. The book account shows $2669.19 and Mr. Wheeler has charged in this statement $2924.79 being a difference of $255.60 and the amounts excluded or eliminated by the aggregate $767.64 leaving the repair account at $1922.82.

Q. If you take the book account of $2669.19 and your deduction of $767.64 and additions of $78.30 and $42.97 which you allow on page 107 we don't get $1922.82, do we?

A. Deducting $767.64 the sum of the items excluded from the $2669.19 shown by the books leaves $1901.55, where I have allowed $1922.82, being a difference of $21.27 more allowed than this deduction would indicate, but take it that this amount is covered in some other item and in some other way.

Q. But if you add to that the sum of $78.30 and $42.97 as on page 107 you have allowed them——

2874 A. ——that would make $2022.82, but I appear to have already included these two amounts of $78.30 and $42.97 in the $1922.82 in the first place.

Q. I think if you will figure it out that where you have allowed $1922.82 you have missed it just $100.00 and that it should be $2022.82?

A. This is perhaps correct as I appear to have only made eliminations or deductions from this account amounting to $767.64 and afterwards added the items of $78.30 and $42.97.

Q. On page 109 of your deposition you state that as office rent of $600.00 ceased on the 31st, of March 1900, this item should be excluded in getting the average for three years. I do not understand that you excluded that item of $600.00 itself?

A. No sir I stated that I think it should be excluded in order to get an average for the three years but that I didn't do it in this table that I made.

Q. Well that brings up a matter that I wish to ask you about; it, as a matter of observation will happen in every year, wont it, that there will be some expense which is peculiar to that year and does not extend to any other year, these extraordinary expenses being a matter of pretty regular occurrences. Now if we excluded everyone of that kind in making averages, wouldn't we reach a result

that will deprive the water company of the benefit of a number of proper payments?

A. Yes, extraordinary and unexpected expenses will necessarily arise peculiar perhaps to that particular year or time, but I shouldn't think that this office rent expense could be considered in that category.

Q. It would not be proper however to exclude from the estimate of averages an item for the sole reason that it was peculiar to any one of the years that are being averaged?

A. No, unless it should be an important amount, or too
2875 many of them so as to make the situation abnormal.

Q. Mr. Nixon, did you ascertain the operating expenses of the Lonsdale Company before consolidation?

A. No sir I did not. I did not investigate the books or business of the Lonsdale-Beaumont Water Company, except to ascertain the quantity and amount of pipe that went into that plant and did this from some court records.

Q. You don't know then whether or not the consolidated plant is operated at a cost less than the aggregate of operating the two plants separately?

A. I do not as I made no investigation that would inform me on this point.

Q. If economy results from the operation of the two plants consolidated, that fact would justify reasonable expenditures in effecting the consolidation, would it not?

A. I don't think I have undertaken to investigate these conditions, as the record shows that the property of the Lonsdale-Beaumont Water Company was absorbed into that of the Knoxville Water Company, and some construction expenses were incurred in connecting up the properties. Treating your question as a hypothetical one I would answer it in the affirmative, so that the expense was reasonable and not out of proportion to the benefits derived.

Q. On page 109 of your deposition it is assumed in a question that you have already stated in separate tables, items of additional expense that enter into Mr. Wheeler's table of operating expense on account of the Lonsdale-Beaumont plant for all of these years. We are unable to find that table in the deposition and I will ask you to point out where it is?

A. As I recall, somewhere in direct examination I was asked to furnish a separate table of the expenses of operation or expenses charged for the Lonsdale Company, and am under the impression
that I furnished such table, and assume that this is the table
2876 which the question assumes as having been made, but in General Wheeler's tables, as I understand, there was no separate statements or tables of these expenses, but they were incorporated into his expenses for the year in question.

Q. On page 110 you make certain comparisons of fuel prices. Isn't it a fact that your statement for the first year excludes the fuel purchase by the Lonsdale-Beaumont plant, and for the last two years includes the fuel for the whole plant, including the Lonsdale-Beaumont plant?

A. In my statement of operations for the year 1899-1900 I appear to have excluded the fuel item of $1069.25 for the Lonsdale-Beaumont Company and for the year 1900-1901 I excluded $194.38 of the same expense, but for the year 1901-1902 I included the entire fuel charge without deduction as it amounted to only $3509.81 against a charge of $5431.15 for the previous year and $4096.69 for the preceding year or 1899-1900.

Q. Ar-n't you mistaken in saying that the sum of $194.38 is not included in your aggregate of $5431.15 for the second year?

A. My fuel expense for 1900-1901 is $5236.77 and not $5431.15.

Q. The deposition page 110 states it at $5431.15?

A. It states that Mr. Wheeler has charged $5431.15 for the year ending April 1st 1901 and $3509.81 for the next year or for the year ending March 31, 1902. This reduction is explained somewhere in the record as resulting from the use of the standpipe the company availing itself of the pressure afforded by the standpipe.

Q. The point is, I understand the sum of $5431.15 for the year ending April 1st, 1901 to include $194.38 to which you refer, whereas as I understand you to say that it excludes it?

A. No sir, Mr. Wheeler's charge of $5431.15 includes the $194.38 for the Lonsdale-Beaumont Company, and my amount for the same year is $5236.97 or $194.38 less than Mr. Wheeler's
2877 charge.

Q. But in your first answer on page 110 I understand you to be simply making comparisons between the cost shown by us for fuel in these years and not attempting to correct Mr. Wheeler's deposition?

A. No sir, that answer was for the purpose of showing that the year ending March 31, 1901 was an expensive one as to the fuel element, and the comparison was recited for the three years.

Q. Is it not a fact that fuel was higher in the year ending March 31, 1901 than in either of the other two years?

A. Yes sir I stated in an answer on a preceding page, or page 109 that the fuel cost was very much enhanced, the consumption being large on account of the consolidation of the plants and the price of coal at that time appears to have been the highest in several years.

Q. And for that year, 1900-1901 the L-B expenses for fuel are included, whereas for the preceding year you have excluded those expenses in the comparison which you give on page 110 of your deposition?

A. In my tables of the operating expenses I excluded the fuel item for the Lonsdale plant in both years, but in the comparison of Mr. Wheeler's charges for fuel for the three years, I gave the total fuel cost, and for the year ending March 31, 1901 explained the division between the two plants.

Q. The sole point that I am after Mr. Nixon is that for the first year in your comparison on page 110, first answer, you include the Lonsdale expenses in the last two years and exclude them in the first year. I refer now only to the first answer on page 110?

A. I will give you the fuel account.

	K. W. Co.	L.-B. Co.	Total.
1899–1900.....	$3027.44	$1069.25	$4096.69
1900–1901.....	5236.37	194.38	5431.15
1901–1902.....	3509.81	.....	3509.81

2878 The average for the three years for the Knoxville Water Company proper being $3924.54 and of the combined operations $4345.88.

Q. It appears from the record that fuel expenses were increased in the second of these years which would attribute to the increase of fuel made necessary by the consolidation, &c., and the increased price of the coal, and that the next year there was a substantial decrease in fuel account, and I ask you if we may not attribute that, first to the decrease in the price of coal and even more largely than that to the economy resulting from the installation and operating of the new pumping machinery?

A. The figures set out in my last answer show for themselves in the reduction of the fuel expense, part of the reduction resulting from decline in the price of coal and reduction in consumption of fuel resulting from the installation of the standpipe and the company availing itself of the pressure to aid in the elevation and distribution of the water, and also perhaps in the installation of pumping machinery that is much more economical in the use of fuel than the old engines that were used, and the pumping against friction and head necessary previously.

Q. You state on page 111 that the construction for the fiscal years 1899-1902 inclusive was not very great. Didn't that construction amount to approximately $140,000.00?

A. On pages 104, 105 and 106 General Wheeler shows that the construction to March 31, 1899 was $6477.69, to the same date in 1900 $36021.68 to the same date in the year 1901 $79233.53, and in the year 1900 he includes the Lonsdale-Beaumont property as coming into the plant at $123012.92. The total construction for the Knoxville Water Company proper for the three years being according to his statement $115732.90, an average for the three years of $38577.63.

2879 Q. And how about the fiscal year 1901-1902; my question applied to the three fiscal years, not the three calendar years?

A. Well my answer was for the fiscal years, except I stopped where Mr. Wheeler did, to-wit: March 31, 1901. I find however in his deposition pages 498, 499, 500, 501 and 502 a recital of the construction, but as it involves considerable addition, will refer to the Treasurer's book page 256, where he shows charged for construction for the years 1901-1902, $51474.87, which amount I have not analyzed or investigated, or in fact any of this construction, as it goes beyond the time of the date of my investigation.

Q. Why, your investigations extended through the fiscal year 1901-1902, didn't they?

A. No sir I stopped on March 31, 1901.

Q. But you have put in tables of expenses, &c., for the fiscal year 1901-1902?

A. The expenses I investigated for the fiscal year 1901-1902.

Q. Then for the three fiscal years under consideration the construction would exceed $140,000.00, wouldn't it?

A. Using these figures it would exceed $165,000.00.

Q. In testifying in regard to salaries you say that the books show that the salary of officers including engineers were paid by the company. Do you mean that the books show the full amounts paid for engineering either during original construction or during later additions?

A. I am unable to say as to the full amount, but the books show that the company paid salaries of officers as well as engineers, counting the superintendent as an engineer.

Q. You don't know whether or not any of the stock issued to Loweree in 1882-1883 was for engineering?

A. No I know nothing about the stock. I find that the engineer was paid for that time $1856.50 and have seen from his
2880 testimony that he was the engineer. I refer to Mr. E. F. Fuller.

Q. It nowhere appears however that he was the only engineer, does it?

A. No, the record doesn't show that he was the only engineer nor does it show that there was any other engineer than him. The record fails to show that Mr. Loweree was an engineer.

Q. Doesn't the contract with Wheeler and Parks, which is on file in this record provide that engineering, amongst other things shall be paid for in stock of the company?

A. My recollection is that it does, but referring to the contract itself would be more conclusive. I have noticed that they were also paid salaries for engineering aggregating some $9000.00.

Q. But that $9000.00 wasn't paid during the period of Wheeler and Parks' contract?

A. I don't recall just when it was paid, or just the date covered by the contract, but I know the books show that salaries aggregating $9000.00 for engineering was paid these gentlemen as well as other engineering salaries.

Q. You state on page 111 that the books show, and Mr. Elbert Wheeler has included in his account of operating expenses, damages paid for accidents occurring in construction. Isn't the only item of that kind you had in mind the Dailey mule that we talked about yesterday?

A. No I had in mind other payments of that character, one being an item of $1000.00.

Q. That was during the Loweree administration, wasn't it?

A. Either the Loweree or Martine administration.

Q. The answer which you make on page 111 however is that Mr. Elbert Wheeler has included in his account of operating expenses damages paid for accidents occurring in construction, that I understood to mean his account of operating expenses from 1899 to 1902?

A. The item in mind in that connection was I think the Dailey mule whose history was discussed yesterday.

2881 Q. You state also that the water company is carrying and paying for as an operating expense casualty and boiler insur-

ance to cover accidents and risks in construction. What insurance do you refer to there as being taken out against accidents in construction?

A. Casualty insurance that is carried for protection against accidents, personal injury and contingencies that are provided against in such insurance.

Q. You mean the insurance would apply to accidents occurring during construction, but it would also apply to accidents occurring in any other way, wouldn't it?

A. Yes sir it should be taken so as to cover accidents both during construction and operation, and usually does so.

Q. And if you are correct in your statement that the amount of construction done during the three years under consideration was not great, of course the proportion of this insurance applicable to construction would be correspondingly small?

A. Yes sir this is true.

Q. Did you make any attempt to separate the business of the company so far as it relates to construction, operation or income accounts outside the city from those within the city?

A. I did not, and do not think it would have been possible for me to have separated this construction operation. In another connection where making an estimate of the effect of the reduction of water rates, I made some separations, but this is all the division that I ever attempted in my investigations.

Q. On page 113 you appear to assent to the statement that Mr. Wheeler has estimated on page 187 of his deposition that 17.61 per cent. of the value of this plant lies outside the city, and 82.39 per cent. inside. Please turn to page 187 of Mr. William Wheeler's deposition and see if he does not qualify this statement as follows:

"That portion outside 17.61 per cent. comprises 12.29 per
2882 cent. of the whole not required or used for supplying water within the city limits, and 5.32 per cent. the balance that was required and used for supplying water within the city limits" and his further statement that all the properties except 12.29 per cent. serves the city proper?

A. Well as I understand the recital of these percents the effect of his answer is that all the properties except 12.29 per cent. serves the city proper; and as to the first part of your question, I did not attempt to assent or pass upon the divisions except to state that I thought a fairer and simpler method would be the one pursued by the Master in the Chattanooga water case where the percentage of income was used for fixing the percentage of expenses between inside and outside the city.

Q. You appear on page 113 to approve a table set out there as being a copy of a table furnished by Mr. Elbert Wheeler on page 5 of his deposition. It is a fact however, is it not, that the third column of the table on page 113 is not in Mr. Wheeler's table?

A. The table you refer to is set out in the question referred to on page 113, being three columns of figures, one for the entire plant, one for the city proper and one headed "Leaving outside the city." Referring to page 5, Volume "2" of Mr. Elbert Wheeler's deposi-

tion I find that two of these columns are set out, and the third column is a pencil result of substracting the items of city proper from the entire plant, which appears to be in the handwriting of General Pickle on the copy of the deposition which I used, the totals thus obtained being for the entire plant, $35775.89, for the city proper $33834.96 and leaving outside the city $1940.93.

Q. Do you know anything of the circumstances leading to the adoption of the method that was used in this matter in the Chattanooga case?

2883 A. I read the evidence in which the divisions apportionments and percents were set out, and also the report of the Master acting upon the same, which I may say is all I know of the methods and the results arrived at in the Chattanooga water company case. As I recall 15 per cent. of the income was found to have been derived from outside the city in that instance and the operating expenses were apportioned in accordance therewith.

Q. And that was done without objection of counsel, wasn't it?

A. I don't recall. There did not appear to be very much objection of counsel in that case.

Q. If the purpose of this suit be to ascertain values of the plant as a whole and in its parts, and the actual values of the whole and the parts inside and outside the city be ascertained, there would be no reason for resorting to a percentage of income in order to determine values, would there, the use of the percentages simply to determine values not otherwise ascertained?

A. Accepting your question as a hypothetical one, and not reciting the conditions disclosed in the record in this case, which it does not fit, I should answer, yes.

Q. Ar-n't the properties inside and outside specifically valued in this record and separated?

A. No sir I have been unable to arrive at any such separation—the properties and much of the location of same are indicated, but the line of demarcation between the inside and outside the city has not been maintained, and a separation of the construction, operating expenses and income account could not be correctly made up from the books and records that have been available to me.

Q. I hand you Exhibit "1" to William Wheeler's deposition and ask you to look to page 12 of it and see if on that and following pages are not set out a statement under the following head: "Real estate and plant of the Knoxville Water Company situated outside the corporate limits of the city of Knoxville as such limits

2884 existed March 31, 1901, and ask if the statement which follows is not minutely detailed and itemized?

A. There are 17 pages of detailed items and figures set out on this exhibit under the caption that you have recited, but not being acquainted with the lines of the city limits existing at the date indicated, or having the time to check them up, this mass of details I did not attempt to follow the same, and the result would be subject to so many contingencies that I should doubt its values as a reliable basis upon which to formulate such an estimate, as I have found heretofore and throughout the record so much error and overcharge

and excess in these estimates, that I would require thorough investigation before accepting the same.

Q. But you do now find such a statement in the record?

A. Yes sir there are these 17 pages included in the exhibit which you hand me, but I do not recall that I handled such exhibit before, but think perhaps I did see these sheets, or some of them.

Q. The statement was in the record before you began your work in the case, wasn't it?

A. I don't think in as complete, compact and systematic form as the exhibit you have handed me.

Q. Is it more or less expensive to supply the more remote districts with water than it is to supply the districts inside the city?

A. On page 114 I have heretofore answered that this is subject to so many various conditions that would enter into the matter that it would require, I should think, a detailed examination before an accurate estimate could be made. But on considering the situation in this city in a general way, I should say if there is any difference in the expense, it is more expensive outside than inside—there is the pressure, friction and distant scattered services and consumption all to be taken into consideration.

2885 Q. As the plant is now established why should it be any more expensive to supply the outlying districts than the city proper?

A. As stated in a previous answer the pressure is perhaps heavier at some of the elevated distant points, the friction over a long line of crooked pipe would be increased, and the distant scattered services and consumption all combine to enhance the expense of supplying water in a territory of that character as against the conditions nearer the supply.

Q. But the water being delivered and stored in a reservoir or standpipe, it cannot make any difference, can it whether that water is delivered at a short distance or a long distance provided no more pumping is necessary?

A. I couldn't concede that this is a correct position. If it is, it appears to me that the water company could take in Clinton and Morristown as well as the city of Knoxville.

Q. Well suppose that the water is stored in the reservoir of the Knoxville Water Company and it has a pipe line to Morristown and the water simply runs out of the reservoir into the pipe and on to Morristown, what additional cost does that entail in the matter of serving Morristown in the operation of the company?

A. I certainly could not concede under such conditions that the water could be as cheaply supplied at Morristown as it could on Gay street in Knoxville.

Q. Well if the water runs through the pipe from the reservoir to Morristown without any additional pumping, where would it go with additional expense?

A. Forty miles of pipe would be to maintain and look after and protect from Knoxville to Morristown, a distinct, distant distribution system at Morristown would entail increased expense in addition to

other conditions encountered that might be enumerated. In
2886 fact it would appear to me that this assumption is so unsound that its discussion is not profitable.

Q. Well now conceding the point so far as Morristown is concerned, is there any material difference in serving the customer at a reasonable distance from the plant than in serving one in the immediate neighborhood of it?

A. Well this assumption would be dependent upon a thorough investigation and consideration of the conditions. Of course there is not much difference in the expense of serving two water takers in the same vicinity within a reasonable distance, but an increase of the distance and an enlargement of the opposing conditions encountered, would certainly increase the cost or add to the expense.

Q. On page 117 and following pages you have undertaken to set out certain comparisons of William Wheeler's estimates of fair construction with the book cost of construction. Have you, in making these comparisons taken into account Mr. Wheeler's additional allowances on page 107 of his deposition being for administration services, contingencies, &c.?

A. No, on page 107 Mr. William Wheeler adds another 20% to his original estimated cost of the plant, $711379.51, which already included one twenty per cent., but on reference to my deposition pages 117-118 it was not the purpose to compare the book cost with Mr. Wheeler's estimated cost of construction in North Knoxville, but to show the amount of the construction according to his estimates of same, being $221324.48, less $56346.57 paid in cash on same, as paid for in $685000.00 of Common and Preferred stock, as before stated, showing the great disparity between his estimated value of the construction and the payment for same in securities of the company.

Q. But Mr. Wheeler's estimate did include this additional 20% you refer to?

A. In his estimate of this construction in North Knoxville for the years shown, the original 20% is included but not the ad-
2887 ditional or second 20% described in his depo- on page 107 as a possible addition to the cost of the plant that might be thrown in for good or heaping measure.

Q. The fact then is in making your comparisons you did not include the second 20%?

A. No sir I adopted his estimates for these years for this construction in making this comparison.

Q. You do admit however that some allowance should be made for general administration services, contingencies, legal services and expenses, charter and franchise charges &c.?

A. To the company or contractor in this case?

A. I mean to the Knoxville Water Company?

A. This construction was not done by the Knoxville Water Company, as I understand but by Messrs. Wheeler and Parks as contractors.

Q. Well I have asked the question?

A. I could not concede that these contractors should be entitled

to administration, organization and promotion expenses or allowances.

Q. Not even in the organization, &c. of the North Knoxville plant which they turned over to the Knoxville Water Company?

A. No, it appears that in this instance the 20% allowance aggregating $36887.41 is ample to compensate the contractors for these expenses and undertakings, to say nothing of the excess of over one-half million dollars par value in securities of the company obtained in this transaction.

Q. Your position then is as I understand you that while these expenses are allowable in part at least, enough had been paid otherwise or on other accounts to cover them?

A. Yes sir I should regard this as a very excessively profitable transaction to the contractors, and doubt if it has a parallel in this section.

Q. Now my question to you was whether or not you regarded allowances for general administration services, contingencies, legal services, expenses, charter franchises, &c. allowable as a mat-
2888 ter of right, without regard to whether they had been paid or not, my purpose being to ascertain your opinion as to the propriety of such charges as a matter of principle, and not to elicit your criticism of the profits of Messrs. Wheeler and Parks?

A. There are instances or circumstances under which such allowance would, in my judgment, be entirely proper, but this is not one of them.

Q. At what time in the history of the Knoxville Water Company do you think it would have been possible for it to sell its bonds at par?

A. With its capital stock paid up, I think it would have been possible to have sold its $125000.00 to $150000 first mortgage six per cent. bonds at par or more at almost any time after the organization and commencement of operations of the company and possibly at an earlier date.

Q. My question Mr. Nixon is not at all answered in what you say, being at what time in the history of the water company, assuming you to know that history, it would have been possible for it to have sold its bonds at par. Now I know and you know that its capital stock was not paid up, in the sense you use, and I ask you to answer the question according to the facts as they existed without further argument?

A. I should consider that the payment or non-payment of the capital stock, the character of the management, the handling of the credit of the company and many other circumstances and conditions would enter into a proper answer of this question.

COMMISSIONER: With the business done as it was done?

A. —and the apparent disposition upon the management to discredit its bonds——

Mr. CALDWELL: I object to that.

COMMISSIONER: With the business of this company having been

conducted as you understand from this record it was con-
2889 ducted and the methods pursued, at what time do you think the bonds of this company could have been sold at par?

A. With the methods pursued and the disclosures that I have encountered in this record, the evident intention of the management being to depreciate the value of the securities——

Mr. CALDWELL: I object to that.

COMMISSIONER: Just answer the question as I put it to you?

A. I don't think even the first issue of First mortgage six per cent. bonds could have been sold at par to parties outside the company, and those inside would not have found it necessary to have paid that price.

Q. Now Mr. Nixon on page 123 you appear to assent to a statement that Elbert Wheeler states the construction account as shown by his book from December 1891 to March 31, 1901 as amounting to $1488889.68. As a matter of fact Mr. Wheeler does not state that as the construction account does he, but as the indebtedness of the company?

A. Referring to page 123 of my deposition, it discloses that I did not assent to this statement as of construction cost, but answered that "this aggregate amount of securities exceeds the total estimate of Mr. William Wheeler to the same date including 20%, $777-520.17."

Q. But you did not deny there that securities represented the construction cost anywhere that I see?

A. No I wasn't asked any question on that point.

Q. You were asked about the construction wasn't you?

A. I answered explaining that this aggregate of securities exceeded the estimate of construction by the amount recited in the last answer.

Q. Now in making a comparison such as you are undertaking at this point of your deposition, isn't it proper to compare it
2890 with William Wheeler's statement of the amount of securities necessary to issue to cover the entire property and plant of this date of $960,760.06 as shown on page 181 of William Wheeler's deposition?

A. No sir, I think it would have been more proper in making this comparison to have used the amount of his construction cost as given on page "25" Vol. 2 of General Wheeler's deposition to this date, being $1,469,095.86 instead of the aggregate of indebtedness or securities set out in the question, to which I replied on page 123 of my deposition. As I understand Mr. Wm. Wheeler on page 181 of his deposition, he is discussing another subject than the comparison of construction account on the book with his estimates of cost of the plant. On page 181 Mr. William Wheeler, I understand, discusses the ability of the plant to carry securities to the amount of $960,-760.06.

Q. You were asked in your deposition on what account abatements were made, and you say on prompt payment—payment by a certain date in compliance with the regulations of the Water Company.

Have you examined the collection reports of the company to verify this statement?

A. Yes sir, I understand abatements to be in line with discounts or reductions on water bills charged.

Q. For prompt payment?

A. And other things.

Q. Well "what other things?

A. Reductions for quantity of water taken, and other reductions from the total amounts charged for water for given periods.

Q. Isn't it a fact that abatement account includes not only discounts for prompt payment, but abatements from any water taker's account after it is entered and before being paid, caused by a wrong assessment, shutting off or any other fact causing a reduction in charge?

A. I understand a charge of this sort is abated.

2891 Q. Now after a bill has been paid and for any reason a change or shut-off is affected and a refund of the amount is made, that is a rebate isn't —?

A. I so understand.

Q. Now you have been asked on page 127 what would have been the water collections of the company for the three years under discussion under a regulation schedule, or tariff of rates allowing no abatements, and asked to give it for each year. Now should those abatements given for wrong assessments, shut-offs &c. be included in this account which you are asked to give?

A. Referring to page 127 I understand my answer to the question asked as formulated is in correct response thereto. If such abatements, or abatements of such character as you recite are taken into consideration, they probably should be handled in a different manner than in my answer in response to the question outlined, that question making no provision for a definition of abatements, or a modification of the same for any reason, but simply asking the effect if no deduction for abatements was permitted.

Q. Are you not specifically asked on page 126 of your deposition "what are abatements as used in this table?"

A. Yes sir.

Q. And you only included discounts for prompt payments?

A. No it appears I did not give the entire and full definition of abatement account, or all the elements that might enter into the same, nor was any distinction or definition of the character of abatements recited in the question.

Q. The question was asked to give you a chance to define abatements, wasn't it? and you defined them wrong?

A. No I defined them correctly as far as I went.

Q. You state on page 127 that had no abatements been allowed the water collection for 1899-1900 would have been $90195.05 do you not?

2892 A. I think I made such statement.

Q. How do you get this amount?

A. By taking the balance of water tax account for the year 1899-

1900, $84483.31 and adding thereto the increase of uncollected accounts for that year $2168.65 and adding thereto the abatement account for that year $3543.08 secures a total of $90195.05.

Q. So you add to the $84483.31 the abatements and the excess of uncollected accounts brought over at the end of the year. Now don't you know as a matter of fact that the abatements of $3543.08 are already in the $84483.31, and isn't that last necessarily a fact and don't your own table on page 134 show that fact where you take the abatements out to get the net water income?

A. To the first part of your question relative to the increase of accounts, this is a creation or gain in the uncollected accounts for the year.

Q. I don't dispute that?

A. And in reply to the last part of your question you appear to be correct as I appear to have added the accounts and abatements to the gross balance improperly as is shown on page 134 where I make a table of proper income. These figures given on page 127 are not used for any purpose except to show the increase by not deducting abatements. On page 134 this correcting is plainly apparent.

Q. On page 127 you make the same kind of mistake in regard to the year 1900-1901, do you not?

A. I assume that I have without figuring it, which is also corrected on page 134.

Mr. CALDWELL: We admit that the change was made in the table on page 134, but we don't wish to go on record as admitting that the change on table page 134 is correct.

Q. You made also the same mistake on page 127 as to the year 1901-1902?

A. I assume so, but if so the table on page 134 corrects it.

2893 Q. In the matter of the difference in uncollected bills, if the bills were larger at the end of the year than at the beginning, it would indicate that charges for water had been made during the year by $2168.66 in this particular year greater than the collections were, would it not?

A. Yes sir this is true.

Q. Then doesn't this establish the fact that if the charges during the year were greater than the cash collections by $2168.66 the cash collections were this amount less than the book collections?

A. No sir the books for Profit and Loss purposes handle only the balance of the water account. In this year for instance the entire credits to water account amounted to $89986.03 which included the cash collections, the credit taken from the Lonsdale-Beaumont Water Company and the uncollected accounts at the end of the year. The charges on the debit side of the account are for the accounts on hand at the beginning of the year, a small amount refunded marked "F. C. K." for explanation and the balance remaining being $84483.31 is carried to Profit and Loss as the water receipts for that year, whereas the entire receipts from water account for that year or total credits amount to $89986.03.

Q. Well let us see; please turn to page 207 of the Ledger under

date June 30, 1899 and state the item which appears on the credit side of the account?

A. Well I will just repeat what I have already recited in the last answer.

Q. I don't want you to repeat but I want the amount that appears there of that date?

A. "1899 June 30 by sundries, see 66 cash book, $17029.64."

Q. Now what does that page of the cash book show as to this item; it shows water three months, don't it?

A. Referring to page 66 cash book, shows water three months.

Q. Now what is the next item on page 207?

2894 A. September 30 referring to cash book, page 74, water three months $17625.70.

Q. Now what is the next entry on page 207?

A. December 30 referring to cash book page 82 $18338.57.

Q. Now what is the next entry on page 207?

A. March 31, supposed to be the year 1900, referring to cash book page 88 $22597.39.

Q. Now these four items that you have testified about and looked up in the cash are the aggregation at the end of each three months' period of the weekly report collections, on account of water, are they not?

A. No they would show the collections of water for the three months as cash is charged with that amount at that time.

Q. They show the total water collections however for periods of three months?

A. They show total amount charged to cash account credited to water account for three months.

Q. And they show the actual book collections for this year do they not?

A. Yes sir they show the four charges to cash and credits to water for the four quarters of the year.

Q. Well will you say specifically whether or not they do show the actual book collections for this year?

A. These four items comprise four charges to cash on the cash book for the four quarters of this year which amounts are carried to the credit side of the water account in the Ledger.

Q. Is it a fact that they do not show the actual book collections?

A. They purport to show the cash collections.

Q. Do they purport to show the actual book collections?

A. You would have to translate what you mean by book collections before I could answer that question.

Q. Do they show all the water collections for this year shown upon the books of the company?

A. Yes sir all the collections that have passed through the cash book as cash collections.

Q. Now turn to page 207 of the Ledger, the last item but

2895 one, and please read it?

A. "Ditto March 31 by Journal 100-F," and turning to Journal 100-F "L-B W. Co" is charged and water credited $6749.60.

Q. Now these five items aggregate $82340.90, do they not?
A. They do.

Adjourned until Friday morning, November 20th, 1903, at 9:00 o'clock, A. M.

2896 FRIDAY MORNING,
November 20th, 1903—9:30 o'clock a. m.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

Q. On the opposite side of this account, next to the last item is $26.25; please look at its cash reference on page "77" and see if it is not a credit to the water account?
A. No, it is a charge to Water account on page "77" and credit to cash.
Q. What is it on the ledger here?
A. It is charged on the ledger here and credited on the cash book.
Q. Well the result is that it is to be deducted from $82340.90?
A. Yes sir, that is the proper treatment.
Q. And the balance which then remains, represents cash collected for water this year less this credit of $26.25?
A. Yes sir.
Q. And the balance of $82314.65 thus reached is the amount before deducting either abatements or rebates, isn't it?
A. Yes sir, this is the cash receipts from water before these additional deductions are made.
Q. Then the amount that you state $90195.05 on page 127 of your deposition is incorrect by about $8000.00?
A. Yes sir, I explained yesterday that the amount on that page was not the correct amount, as the abatements had been added to the gross instead of the net water receipts.
Q. Now the difference in the stock account this year you say is $2168.66, the addition of this amount to the amount of actual book collections of $82314.65 produces the profit and loss item of $84483.31, does it not?
A. Yes sir.
Q. So that to obtain the actual book collections in this year from profit and loss account of $84483.31 you would have to subtract this difference of $2168.66 in the stock account, would you not?

2897 A. To obtain the exact cash collections of this year, which I assume is what you mean by "book collections" this accretion or gain in uncollected accounts should be deducted.

Q. Now on page 134 of your deposition after explanations covering two or three of the preceding pages, you set out a table where to the profit and loss account of water, or as you have called it "the water tax balance" you have added this increase in accounts instead of subtracting it. In the light of your testimony as now given, are you ready to admit that this is an error on your part?
A. I will explain that since I made up that table, I have dissected one year of the income or water receipts, and examined an additional book in the office of the Water Company known as the

"Register," and in dissecting, separating and segregating the receipts from hydrants, meter rates, meter rents and fixtures, and comparisons of the same with the Treasurer's account, I am in doubt as to the correctness of the position taken with regard to this increase of uncollected accounts, and while not yet, without some further investigation, ready to admit that this was proper, I prefer to make a comparison of the cash reports of collections for a quarter, and if the results attained are as I now assume, I am inclined to the opinion that I should not make this addition to these balances, and would therefore make a new table eliminating these additions and at the same time make the corrections of the small amounts that we have disclosed in the last day or two. This would make a change of $3444.58 for the three years, reducing the income to that extent.

Q. Well as you have added it where it should have been subtracted, it would make a change of twice the amount you have named, wouldn't it?

A. No it had already been subtracted—if that position is correct, it had been subtracted, it would only make a change of the amount, not twice the amount.

2898 Q. Where had it been subtracted?

A. In this assumption upon which I am now proceeding. This accretion had been considered in the balances carried to Profit and Loss as is shown by the calculations made in your last question and my answer thereto.

Q. If your assumption, to which you refer in your last answer is correct, the Treasurer's statement of net cash collections is right, isn't it?

A. Practically so, if my assumption that I was wrong in adding these gains in uncollected accounts.

Q. The same statement that you made in regard to these balances will apply to each of the other years that you have considered?

A. Yes sir, 1900-1901, 1901-1902. I will make this further investigation to convince myself, and if convinced will make a new table eliminating these additions and restoring the three, four or half dozen items deducted from operating expenses through error or misapprehension.

Q. In addition to these matters that we have just considered, is there not a further infirmity in this statement on page 134 by reason of the fact that you have charged the water company with all the income from the Lonsdale-Beaumont plant, and have not allowed it any credits anywhere on account of expenses of that company?

A. Yes sir the receipts for the year 1899-1900 as shown in this table include the amount of $6749.60 that the Treasurer left out in his statements, but was included in my table; the expenses against the same being eliminated it is perhaps proper in this table to also eliminate that part of the water receipts accruing before January 1st, 1900.

Q. You say that the Treasurer left this amount of $6749.60 received from the L.-B. property out of his statement. As I don't so understand, I will be glad to have you show me where he

2899 omits it, or how you conclude he omits it?

A. I don't find it omitted on the books, but in his testi-

mony showing the receipts he gives a less amount than would occur if these receipts were included, and the amount given upon which the salaries of the Treasurer and Supervising Engineer are based, is much less, or about $75500 and some odd dollars.

Q. I will have to ask you to show from the deposition of General Wheeler where you find the facts for your conclusion?

A. On page 42 of the table, "water collections and operating expenses and interest" General Wheeler shows that the receipts for 1899-1900 were $78538.23 where the books show that they were $84483.31 making a difference of $5945.08, which I assumed at that time was caused by leaving out the Lonsdale receipts.

Q. You are satisfied now however that the Lonsdale receipts were not left out by the Treasurer?

A. Well they are on the books al- right.

Q. You are satisfied now that the Lonsdale receipts were not left out by the Treasurer in his deposition?

A. I am satisfied that they were left out in some places and not left out in others. He evidently did not use them upon which he based the percentages of salaries for that year, and they do not appear to be used in this comparative table where interest is considered, but in another table where he separates the entire receipts from the receipts outside the city, he appears to use the total amount.

Q. Isn't the total amount of L.-B. account $6749.06 necessarily in the result of $82314.65 which you reached awhile ago?

A. Yes sir and also in the $84483.31 which was the balance that appears to be used on the books and is carried into Profit and Loss account.

Q. But you have just agreed above, have you not that the
2900 net cash collections were $82314.65?

A. Yes sir.

Q. Now suppose from that amount you subtract the abatements $3543.08 and rebates $259.58, that aggregates does it not $3802.67 of which subtracted from $82314.65 leaves $78512.28 which if you add the credit of $26.25 would get $78538.23. Now don't these calculations show that the L.-B. account is in the statement—put into his deposition by the Treasurer?

A. Yes sir these calculations would account for the differences.

Q. The result of these several corrections of your table on page 134 would have the effect of course of avoiding your estimates of water income and also of operating expenses and surplus, would it not?

A. It would have the effect of producing new or different figures from those shown on the table, of course.

Q. Your investigation of the affairs of the Knoxville Water Company began in March 1903 I believe?

A. No I commenced going through the court records in April, put in 17 days that month and 7 days in May.

Q. You continued your investigations by yourself, how long?

A. If I remember correctly up to the first of September, when Professor Brown joined me.

Q. Was Prof. Brown brought into the case at your suggestion?

A. No sir but I approved the suggestion. His name was suggested before I thought of him.

Q. Did you call for help to enable you to finish the work of making replacement estimates, &c.?

A. No I don't think I called for such assistance, but when Prof. Brown's employment was suggested, I readily agreed that he would be of much assistance in making the estimate of replacement cost, and handling the plans, quantities and measurements as he
2901 was entirely conversant with such calculations.

Q. Had you, before Prof. Brown was called into the case, made out any replacement estimate?

A. No, except purely an estimate without basing it on accurate detailed calculations, the result reached being as I remember about $425000.00 instead of $379000.00, which was reached by greater and more complete consideration of the details.

Q. Would you have undertaken to make such an estimate or statement yourself unaided?

A. Yes sir I could have done so, but not in as great detail and as accurate, as I would have had to have used more estimates, unless I had secured some assistance in the calculation of the plans and some other data and consumed a great deal more time in other investigations that I would have found necessary.

Q. Don't you admit that it was necessary to have someone having a larger knowledge of these matters than yourself to make a proper and sufficient statement of the kind which you have designated as your replacement cost?

A. No I think I could have made such statement without the employment of another man, but it would not have been so practical and perhaps not so accurate in all small details, and would, as I have stated, required much more time and investigation upon my part.

Q. Before Mr. Brown came into the case how much actual measurement of any physical parts of the plant had you made?

A. Very little as I had not commenced that part of the work, my time having been occupied in investigating overcharges and excessive estimates and computing the income and examining operating expenses.

Q. Now you speak of having prepared a statement of replacement cost that you made off before Mr. Brown came into the case?
2902 A. Yes sir I made up this estimate sometime before Mr. Brown came into the case.

Q. Made it without any measurements at all?

A. Yes sir, used only the figures found in the record as given by Mr. William Wheeler, and taken together with other information and experience, and also in connection with the investigations in the Chattanooga Water case.

Q. In the course of your second investigations, you found that the Clinch Street pipe bridge weighed 9033 pounds. How did you find that.

A. Professor Brown took off the measurements from the plans of this bridge, being the length, width and thickness of each member,

which we computed and found that one side of one span weighed 1398.6 pounds. We doubled that for two sides. We then ascertained the weight of the stays and bracing at 1504 pounds, and secured the weight of one span as 4301.2 pounds, and doubled this weight for two spans securing 8602.4 pounds, and added thereto 5 per cent. for rivets &c. and secured an aggregate weight of 9033.4 pounds; and I conferred with the Converse Bridge Company at Chattanooga, and was informed that small bridges at that time were erected by that company at from 4 to 4¼ cents per pound; also that voucher #154 May 25th 1900 showed the purchase of this bridge from the Wrought Iron Bridge Company at $465.37.

Q. How much would the price of that Chattanooga Company have made this bridge?

A. At 4 cents it would have been $361.33 and at 4¼ cents it would have been $393.90.

Q. That is to say you found the Chattanooga corporation would have furnished this bridge at about $360. odd dollars—you also found that this Company had actually paid $460.00 and you adopted the Chattanooga statement in preference to the actual

2903 payment by the company, is that correct?

A. On page 136 of my deposition I was showing the overcharge for excess in estimated cost of this bridge. In our statement of cost of replacement of plant we allowed for this bridge $452.98.

Q. That aggregate however included contractor's profits &c. at 15% amounting to $59.08, didn't it?

A. Yes sir.

Q. And leaving the cost of the bridge itself at $393.90?

A. That is true.

Q. But you found by the invoice that the company had paid over $460.00 for it?

A. Yes sir, they seemed to have gone to a bad place to buy it.

Q. And that is the reason that you decreased their price, because they had gone to the wrong place to buy it?

A. Yes sir they evidently didn't go to the cheapest place to buy it. We discussed also the addition of an amount to the cost of bridge for additional erection or preparation for its erection, but as the estimate for pipe distribution system charges all the large pipe as cast iron at a footage price laid in the ground, whereas, as a matter of fact there are several hundred feet of wrought iron pipe used for crossing these bridges that is obtainable at a much less price than cast iron with practically no cost for laying, and on that account did not make this addition or allowance for preparation of the foundation and erection of this bridge and omitted the "I" beams for supporting the pipe at other points. As the company in its estimate did not furnish the details of these supports, we assumed that they adopted the same policy of considering that the difference in the character of the pipe would more than cover this expense.

Q. What kind of pipe is it?

A. Wrought iron pipe.

Q. Are you positive of that?

2904 A. Well I didn't cut into it but it is screwed together.

Q. I didn't ask you that; I asked you the simple question if you were positive about it?

A. Yes sir I am positive the pipe to which I refer is wrought iron pipe. I think I know wrought iron pipe.

Q. What pipe is it?

A. Some on the bridge down here east of Gay street— I don't know the name of the street— and also on the Gay street bridge and some other bridges I have seen. Prof. Brown and myself examined it together, but we did not know and did not ascertain the name of all the streets.

Q. Well you say in your deposition it was Clinch street; was that correct or not?

A. No I didn't say in my deposition that the wrought iron pipe was on Clinch street.

Q. Well I hav-n't been asking you anything else except about Clinch street?

A. The pipe bridge on Clinch street is not made out of pipe but out of wrought iron.

Q. What kind of pipe is it, I mean?

A. The pipe crossing Clinch street that is supported by the pipe bridge is cast iron pipe.

Q. Well what pipe have you been testifying about as wrought iron as I have asked you nothing except about Clinch street?

A. Wrought iron on several bridges throughout the city.

Q. Don't you know it to be a fact that there is not a foot of wrought iron pipe on any pipe bridge belonging to the water company in the city?

A. I hav-n't said there was. I have referred to wrought iron pipe on other bridges, highways, railroad and street bridges.

Q. What kind of a pipe has the Knoxville Water Company on Gay street bridge over the Southern Railway?

A. Prof. Brown will have the measurements, details and information and sizes and lengths of this wrought iron pipe on the
2905 bridges and can give you more specific details when he comes on the stand, as I didn't have these measurements.

Q. If you are not able to respond on cross examination to questions of information about this replacement account, do you undertake to say that it is your replacement account still or Prof. Brown's?

A. I think it is the joint production of both of us. As I have explained before much of the details, figures, quantities and measurements upon which this replacement cost is based and from which the results are obtained, were not copied by me in my book, and on that account I am not able to give you these small details as Prof. Brown will be when you come to examine him.

Q. Do you or do you not know the fact that there is no water pipe on the Gay street bridge over the Southern Railway, but only a Gas pipe?

A. At the time we made the investigation we did not inquire into this fact as to the Gay street bridge. We saw a wrought iron pipe on the bridge about 8 inches in diameter, but if it is not a

water pipe it will not be included in his statement of specifications of wrought iron water pipe.

Q. In the replacement statement the pipe bridge on Clinch avenue is put down as 9033.4 pounds of steel. Why was the word "steel" used?

A. Steel and wrought iron are almost synonimous terms these days. Steel is perhaps a more accurate term, as I stated wrought iron in distinction from cast iron, but as a matter of fact steeel is used almost universally for such construction at the present time.

Q. This weight of 9033.4 pounds includes the pipe, don't it?

A. Oh no.

Q. It is the bridge by itself then?

A. It is the bridge alone.

Q. Now you say that you found that the Deane pumping engine could have been bought at that time for $10500.00 From
2906 what sources did you get your information?

A. You are now quoting my statement in regard to excess in estimate of cost of this machinery and not its cost of replacement. Without my memorandum, but as I recall, we submitted the specifications of this engine to pump manufacturers and agents and were informed by one and perhaps more that this engine of this manufacture could have been purchased at that time at $8500.00. I think as I recall at the factory. I don't know whether delivered or not, without I had my memorandum.

Q. But you say in your deposition that it could have been bought for $10500.00?

A. I should have stated $10500.00, as the $8500.00 quotation was on some other pump.

Q. Where did you get the specifications that you submitted to these manufacturers?

A. We took it from the plans, that is the dimensions capacity and all the information we could obtain from the plans, and description. I don't think there is any invoice of this Deane engine in the records of the company. It was put in by the contractors. It appears to have been a defective machine, as the contractors were charged up on the books for its failure to fill its guarantee or produce as economical results as promised, or for some other failure.

Q. Did the plans show what in addition to the engine by itself the manufacturers were to furnish?

A. Yes sir we endeavored to conform to the exact conditions in comparing the machine.

Q. I would like to have you separate the answer and say whether or not as a matter of fact the plans did show what the manufacturers were to furnish in addition to the engine?

A. I don't recall what the plans did show more than the engine, its connections, foundations, &c. We took off all the quantities, measurements and specifications that we could find so as to
2907 reach a just comparison of the engine.

Q. Did you write to the Deane Company, the men that made this engine?

A. I did not; I do not know whether Prof. Brown did or not, but

I think he had an interview with the Southern representative of the company.

Q. Did he get a statement from him?

A. There was so much of this detail that I do not recall whether he had a written quotation from him or not. I think this $10500.00 price for that time for this engine and appurtenances was made by either Mr. Brady, now the president of the Heron-Brady Steam Pump Company of Chattanooga, but at that time the southern representation of the John H. McGowan Pump Company of Cincinnati, or the Stilwell, Bierce, Smith Vaile Company of Hamilton or Dayton Ohio, and we perhaps also had a price direct from the Stilwell-Bierce-Smith-Vaile Company and some other pump manufacturers.

Q. Where is this correspondence?

A. I do not know whether I have it in my room or whether Prof. Brown retained it. Some of this information was obtained verbally however and was reduced to memoranda at the time.

Q. You say on page 138 of your deposition that the Worthington Pump there referred to could have been bought for $8500.00. Did you get that information from the Worthington Company?

A. My memorandum here simply shows that we ascertained that this engine could have been bought at that time for $8500.00 at the factory and the freight on it was $207.50, and that the foundation cost $112.50, but without reference to the correspondence and memoranda, I am not able to say just how we obtained this cost, but we had it good and solid, as in our cost of replacement we have used two of these engines at a cost of $9000.00 each, f. o. b. Knoxville March 31, 1901.

Mr. CALDWELL: If the court please we desire to give notice that we will ask to have the correspondence upon which prices of
2908 machinery and materials appearing in this deposition and the deposition of Mr. Brown are based, brought into court for our inspection. We do not care to stop the deposition this morning for that purpose, but ask that they be brought in at a later time, preferably at the next session.

COMMISSIONER: Well that is reasonable I suppose. You would as soon have it brought in by Mr. Brown as Mr. Nixon, I suppose?

Mr. CALDWELL: Yes sir.

Q. You found the invoice for this Worthington engine in the office of the water company showing that the Water Company had paid $11865.00 for this engine, didn't you, and that that price was f. o. b. Knoxville?

A. I have seen an invoice showing this amount?

Q. You refer on page 139 to a 24 inch quarter bend and set out its weight. Who ascertained that weight, you or Prof. Brown?

A. We had R. D. Wood and company's catalogue and some other catalogues of weights and specifications and I do not recall which of us picked out the weight of this quarter bend, but my recollection is Prof. Brown did so in making up the cost of the connections to

this engine and that I used the weight from his memorandum in this overcharge statement.

Q. Was it an ordinary trade quarter bend?

A. I assume that he found nothing special about it. He had the specifications to compare it with, he having its size and radius and the necessary information for its selection from the catalogue.

Q. Where is that quarter bend located?

A. At the pump station as a part of the appurtenances of the 24 inch intake.

Q. What I meant to ask you was whether or not you knew this quarter bend was under water?

A. Why of course.

2909 Q. Now it is a further fact that there are no specifications for it any place, isn't it?

A. Yes sir Prof. Brown found it on the plans I think.

Q. Can you show it anywhere on the plans?

A. No sir I don't think I could elucidate those plans here in a reasonable time, as there are about 75 or 80 sheets of those plans with a complex mass of drawings and it would take sometime to investigate them; I wouldn't know what sheet to examine at the start.

Q. And if you found it, you wouldn't understand the plans, would you?

A. Yes sir I think I could locate it on the plans after finding it.

Q. You say in your fourth paragraph page 139 that overcharges on quantities on certain pages should be 2282.8 yards. Is that correcting a former statement of yours?

A. The former statement as I recall referred to the difference in price on this excavation at the river station and this statement refers to the difference in quantity between the cubic yards of excavation charged on the pages indicated by Mr. Wheeler and the measurements of yardage we ascertained by a computation from the plans and other information that we secured.

Q. Had you previously made a statement of this same overcharge?

A. I think I had as to price, giving the amount of overcharge in price without making change in quantity.

Q. This corrects that former statement of overcharge, does it?

A. No this would show an additional overcharge.

Q. Well if it is a proper additional overcharge it corrects the original one, don't it?

A. On pages 22 and 23 I have indicated an overcharge in price on 10043 yards of earth excavation throughout the whole plant aggregating $1065.40. On page 139 I have referred to the

2910 quantities of earth excavation charged on pages 47, 46, 61, 90 and 94 of Mr. Wheeler's deposition as aggregating 3097 yards of earth excavation, where we found by a computation of the plans and other information that this quantity was 2282.2 cubic yards, producing an overcharge of 804.8 cubic yards at 30 cents, amounting to $241.44. The correction about which you inquire would consist in consideration of the fact that the first overcharge had reduced the price from that charged to the correct figures, and if this excess quantity is charged at a greater price than was allowed on part of

the former allowance, so that if this excess was accurately placed, and found to be a part of the excavation for which less than 30 cents per yard was allowed the last charge would necessarily have to be corrected, the prices charged in the first instance being from 20 to 50 cents per yard.

Q. Then is this result of $241.44 alleged overcharge in the fourth paragraph on page 139 correct or not?

A. Yes sir it is substantially correct, being an addition to the overcharge of $1065.40 on earth excavation shown on page 22.

Q. Now Mr. Nixon why didn't you get it right when you gave your first deposition on this point?

A. On page 32 I was asked "Now is the difference that you make between Mr. Wheeler's estimates and your estimates consist in quantity or price or both." To which I replied "in these comparisons it consists entirely in price, as I hav-n't accepted or passed upon the quantities, but will do so later," and these reports on pages 138, 139, &c. are the reports on overcharged quantities, the overcharging in price having been previously partly considered. The reason for this, as you ask was caused because at that time these quantities had not been checked or compared, having given my attention to a
2911 comparison of the prices, not having yet reached a comparison of quantities or investigation of measurements.

Q. And the checking and comparison of quantities was made by Mr. Brown and not by you, wasn't it?

A. It was made by us together from his data and information taken off the plans.

Q. And you could not have done it without his help, could you?

A. Well I could have done it a great deal better with his help, as I am not accostomed to figuring from plans or taking off quantities and out of practice in the use of a scale.

Q. In your first deposition you reduce costs by rejecting Mr. Wheeler's prices; in your second reference in your deposition to this subject you make a further reduction of costs by reducing quantities. Does that result in two distinct reductions which should be added together to get the true result, or does it result at any point in a duplication of reductions?

A. As stated the first overcharge was obtained by a correction of Mr. Wheeler's prices charged for earth excavation being 20c., 30c. and 50c. per yard to 12½c., 15c. 18c. and 30c. per yard, which correction amounted, as stated to $1065.40 and covered 10043 yards of earth excavation in the entire plant. The overcharge reported on page 139 is based upon the reduction of quantities charged by Mr. William Wheeler at the river station being 804.8 yards at 30 cents, $241.40. The latter charge is substantially an addition to the first overcharge reported. As explained in a former reply it would be necessary to locate the items of this excessive overcharge of earth excavation to ascertain if there is any duplication, but if there is, it is comparatively unimportant and could not be more than a very few dollars.

Q. How much?

A. A very few dollars if any.

2912 Q. But however small that error may be, it is an error against the Water Company isn't it?

A. In the first charge 6647 yards of earth excavation at the river station was considered. In the last charge only 3097 yards is treated, which would indicate that there is a very small amount, if any duplication. I could line up and compare each item of this excavation and exactly locate the overcharge of quantity and take into consideration the difference in price, if there is any, and produce a correct result, but as this report of excess of estimates or overcharges has never been formulated into an amount I did not consider that absolute accuracy to a very few dollars or cents was necessary.

Q. Without going into similar items in detail, isn't it a fact that wherever you have made a reduction of costs on account of too high prices in your first statement, and a reduction of costs on account of too large quantities in your second statement, that your two statements thus made, do not in themselves without explanation and addition, represent a correct result, that is a correct result which may be arrived at by simply adding the sums of your two reductions together?

A. I explained on page 142 "that it is proper to explain that in the list of overcharges heretofore presented, the prices of some of these quantities and elements were reduced, and the foregoing is subject to correction or adjustment to conform in these particulars." That is, that in some instances the price having been corrected for the whole quantity and afterwards the quantity corrected or reduced and computed at the original price charged would, if the identical quantity or item was considered, might produce some small duplication.

Adjourned until Tuesday, November 24, 1903, at 9:00 o'clock a. m.

2913 TUESDAY, *November 24th*, 1903—9:30 o'clock a. m.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

Q. Mr. Nixon, why do you conclude that the lining of the enamel brick charged by the Water Company to the engine pit was not used?

A. I reached that conclusion after conversation with the chief engineer who stated that these brick were simply backed with cement without other re-enforcement.

Q. Did that remark apply to the backing over the tunnel?

A. I am not positive on this.

Q. The tunnel is arched, isn't it?

A. The tunnel is arched, yes sir; I mean it is arched and lined with enamel brick also.

Q. It would be impossible to construct that arch and put the enamel brick there without putting the backing behind the enamel brick, wouldn't it?

A. No I don't think it would have been impossible; it might have been easier and more practicable to have used a brick backing, but the lining could have been accomplished without the use of additional brick.

Q. It would have been an inferior and improper kind of construction, wouldn't it, as to the arch?

A. Not necessarily so—as good a job perhaps could have been accomplished, but it is debatable as to whether it would have been more economical to have discarded the brick or to have used them.

Q. I don't understand that you know however that backing was not used in the arch?

A. No, I don't pass upon this part of the work. My reference on page 139 applied to the lining of the pit to which I assumed this charge for 20000 brick for lining applied.

2914 Q. I wish you would look to page 89 of William Wheeler's deposition and see if his $360.00 for lining which you reject apparently upon the understanding that it was lining for the engine pit, doesn't apply exclusively to the tunnel?

A. Yes sir he states it was backing for the retaining wall of the tunnel, which I assumed before covered the pit and tunnel both, judging by the number of brick charged.

Q. Then without further information than you possess at present, it would be proper to correct your disallowance of that $360.00, wouldn't it?

A. Yes, it might be more correct to amend my statement of overcharges in this particular, if such an explanation accounts for the use of this brick all in the tunnel.

Q. Well I understood you to say that you had no information about the lining of the tunnel but only as to the pit?

A. No, I don't think my inquiry of the engineer embraced the tunnel.

Q. You speak of the "engineer"; do you mean William Wheeler?

A. No sir, the Chief Engineer at the Pump Station, Mr. Durham I believe his name is.

Q. Now in your next paragraph, being the last long one on page 139, you say in the second sentence "the measurements amount to 559158 brick a difference of 131092, which after deducting the above 20000 and 21000 for a partition in the boiler house leaves an excess quantity of 9000 bricks." The result of this is gain that you have first reduced the price and then reduced the quantity and consequently reduced the price again?

A. No, in accounting for this excess in brick, which appear to be 131092 more brick charged than the measurements indicated were used, was reduced by the above 20000 brick for backing for

2915 enamel lining and again reduced by 21092 brick used on partition walls and boiler house, thus leaving only the net excess of 90000 brick reported as excessive. The price however of the entire brick charge had been previously corrected and it is possible that in reporting this 90000 brick all at $13.00 contains some excess in this overcharge, but as this showing was simply one of excess charges, the figures not used, and the amounts not even computed,

I did not take the time to secure absolute accuracy of small amounts in these reports of overcharges or excessive estimates.

Q. I understand your position and the way you have dealt with the question at this point, but it is a fact, is it not that if these statements such as occur on page 139 are to be used at all in the argument of this case, or in the determination of it by the Master, that they are to some extent at least inaccurate and misleading as to the final result?

A. I am not able to say what use could be made of these figures in argument, but as I did not formulate them into an amount, and showed the same only as a profert of overcharges and excesses in the estimated cost of these elements of construction, I do not concede that they could mislead the Master very far, as these small differences could not cut very much figure, particularly so when I have fully explained the conditions, so that if it is necessary to use these figures, a proper allowance can be made for any apparent or real duplication that may result.

Q. Who made the measurements upon which you conclude that there is an excess of 90000 brick at the river station charged by Mr. Wheeler?

A. Those measurements were taken from the plans by Prof. Brown.

Q. Then the calculation was made by Mr. Brown?

A. No the calculations were made by Mr. Brown and
2916 myself jointly, using the measurements that he had obtained from the plans.

Q. The measurements and determinations were Mr. Brown's, as I understand you and the calculations yourself in part?

A. No sir the calculations were necessary to reach the determination. For instance if Prof. Brown found that in any part of the work a space of 3 feet wide, 7 feet high and 21 feet long existed, we made the calculation that would secure the number of cubic feet contained in this space, and then multiplyed it by the number of brick per cubic foot and reached the result or determination that a certain quantity of brick was required and used for filling the space indicated.

Q. Why do you say that the gravity filters installed by the manufacturers at the time they were put in, would not have cost over $1000.00 each?

A. I base this statement upon the fact that a manufacturer of a gravity filter of this kind, and a better filter, states that he proposed to install these filters at $900.00 each, or to duplicate them at that figure, and I added $100.00 each to that proposition in making my statement.

Q. Have you the correspondence in which that statement was made by the manufacturer?

A. No sir I have not the written statement, but I have seen it.

Q. Who was it that wrote the letter?

A. The Jackson Filter Company.

Q. Where is that company located?

A. At St. Louis.

Q. What kind of filters does it make?

A. The same character of filters as those used here except a much better filter and a more economical filter to operate, as it has a better device for the washing of the sand than this scratching ar-
2917 rangement used by the Warren filters. I have had experience with the Jackson filters and know what they are and about their operations.

Q. These are Warren filters and you have had no experience with Warren filters, have you?

A. These are Warren filters and I have had no experience with Warren filters, and would not want any if I could secure the Jackson filter. These Warren filters, or a similar make with the scratching device were used at Chattanooga and resulted in a big law suit.

Q. Do you know whether or not the Jackson Filter Company offered to put these filters in at $1000.00 a piece when the Warren filters were erected here?

A. No I don't know the accurate particulars, except the Jackson Filter Company say they made a proposition to H. M. Pason and Company, either to install the original filters or to duplicate the same, I am not positive which, at $900.00 each, and I am not fully advised as to what H. M. Pason and Company had to do with the transaction, except I see from the records here that they were entertained on one occasion, and suppose they had some connection with the filter construction, or its appraisement or approval.

Q. Will you bring that correspondence into court?

A. Yes sir if I can find it. It is possible that Prof. Brown has it instead of myself.

Mr. CALDWELL: I am willing for it to be exhibited with the deposition of Prof. Brown if Mr. Nixon hasn't it.

Q. You refer to a miscellaneous charge on page 72 of William Wheeler's deposition changing Front street &c. You say there are no specifications of these items, but that the charge is evidently excessive to the extent of $200.00 or $300.00. Who reached that conclusion, you or Mr. Brown?

A. This statement was somewhat in the nature of a charge
2918 not strictly based on specifications. The charge gives no items, but it is a general one enumerating sundry items as costing $520.00, which amount would do extensive improvements of streets and changes to an extent that I thought warranted the assumption that this general miscellaneous charge was no doubt excessive.

Q. Did you ask for items or specifications?

A. No sir I relied upon the company to furnish this explanation when this large charge for this work was pointed out.

Q. You could have found these things in the books, couldn't you?

A. No sir I did not run across them, though they may be in the books, but doubt that I would have been able to have collated the charges for this work without mixture with other grading streets, mains and other improvements and extensions of that character.

Q. You didn't try to look them up, did you?

A. No, as the company did not think it was of sufficient importance to point out the items, I did not go to the trouble of undertaking to collate the scattered cost of the same.

Q. The effect is then that you swear here that you assumed these charges to be excessive?

A. Yes sir that I assumed and estimate that they are excessive in line with other excessive charges for like character of work, as $520.00 would accomplish a much larger quantity of this work than the indications appear to have been done at this point.

Q. Have you your estimates with you?

A. No sir this estimate was a general one like the charge.

Q. Are you prepared to swear that the charge is not made up from the items shown in the books?

2919 A. No sir, as I don't know further than that these estimates are stated not to be made from the books, but from experience and outside knowledge, and I am aware of no reason why this particular charge should have been an exception to the general plan followed and that it should have been made up from actual costs, when the other estimates were not so made.

Q. Can you swear whether or not these items are justified by the entries in the books?

A. No sir I cannot, as I have not undertaken to make the necessary investigation for the comparison.

Q. You say on page 143 of your deposition that in most instances you went through the matter personally, but not in all instances, as the quantities taken from the plans of the company was done by Prof. Brown and you used his results or assisted him in reaching the same. Were all quantities that were taken from the plans of the company so taken by Prof. Brown?

A. Largely so; however many of the quantities and measurements furnished by Mr. Wheeler were used, some of the same having been verified, when possible, and in other instances perhaps adopted as approximately correct and thus used for basing results.

Q. Can you state now what plans of the company were used in ascertaining quantities; I will ask you to name them specifically in so far as you can?

A. Generally, the plans filed as exhibits in this case together with the quantities and measurements furnished by Mr. Wheeler in his deposition and some measurements and verifications of the work, together with the quantities and measurements shown in the Pipe Book of the Company.

Q. I am not asking for your method, but what particular plans you used; I am asking you to identify the particular plans in each case as far as you can?

2920 A. I should say that in the case of the Pump Station we used the plans covering construction at that point and at the Filter Station the plans covering the construction, machinery and appurtenances located there.

Q. Did you conform your quantities and results entirely to those plans?

A. Yes sir, closely approximating thereto.

Q. Can you name specifically any particular plan that you used?

A. Yes sir if these sheets filed are numbered or labeled, I suppose I could go over them and read you off the list if it would be of any value in this investigation.

Q. Well I am not asking you to read off any list or to determine the probably value of any answer you may make, but only to say whether or not you can name now specifically any particular plan that was used?

A. I do not understand these sheets to have any name except the number and some designation which is listed in the record in this case, and these are the plans that we used, Prof. Brown having done the most of the handling of the same, and took off all the quantities.

Q. Well can you name any particular element of this physical plant as to which you reached the determination of quantities and value by following the plans?

A. Yes sir at the Filter house we used the plans showing the construction, and derived our results therefrom after verification or comparison with the results attained by Mr. Wheeler. Take for instance the plan for the chimney or stack, we used the measurements shown, and computed the quantities and compared them when possible with the estimates of Mr. Wheeler, and in that way reached our results.

Q. Did you use the plans for everything at the pump station and filter station?

A. Where practical, *he* did so, but in some instances per-
2921 haps resorted to photographs and sketches and other information, which Prof. Brown can more explicitly explain than I can as to that work. I know he went over this construction several times as additional information was disclosed or discovered.

Q. Now Mr. Nixon, it is a fact, isn't it, that you had nothing to do with the plans yourself, but that all the work that was done on the plans was done by Mr. Brown?

A. I think I have stated in effect a half dozen or more times in this record that practically all the quantities taken off the plans was done by Prof. Brown.

Q. I ask you if it is not a fact that not only practically all of them were done by Mr. Brown, but that actually all of them were done by Mr. Brown?

A. I should say that the quantities taken off were all taken by Prof. Brown, but that I gave him some assistance in the handling of these plans and the location of the construction that we were endeavoring to secure information on.

Q. You say "we took some measurements." Please state exactly what measurements you did take?

A. The length, width and depth of the pump wells, some dimensions of the boiler and engine house and of the filter station and settling basins, and other measurements of that character. The storage reservoirs were measured by Messrs. Getaz and Munding, whereas my measurements of these reservoirs consisted only in stepping the same.

Q. Do I understand that you adopted as you found them, all the

pipe lines and all the appurtenances thereto without question as to the quantities?

A. Yes sir we used the measurements furnished by Mr. Wheeler in ascertaining the pipe that had been laid, that had been taken up, and thus secured the result of existing pipe on the date in
2922 question, March 31, 1901, and confirmed this result from the Pipe Books and the certificate of Mr. Kimball and his assistant, of the pipe existing on that date, which agreed within some 10 feet.

Q. You state on page 148 of your deposition that you ascertained the original construction, and that you found the total cost of the plant at the end of say December 1891 as $153000.00. Did you follow the construction cost down the next 10 years and bring it down to 1901?

A. No sir I did not attempt to follow this construction for the second or third period of the history of the plant.

Q. Have you any idea now what that construction cost was for that 10 years?

A. No sir, as the books do not show and there is nothing to furnish this information except Mr. Wheeler's estimates.

Q. How much do they show the construction for that period to be approximately?

A. I don't recall that I ever added up his estimates for that term, as it is simply the difference between the amount he made up to that date subtracted from his total of $711,379.51.

Q. On page 152 of your deposition you say that up to December 31, 1891, that the gross receipts were $209,562.00 and the operating expenses $110,170.00. How much was paid in interest during that period, do you know?

A. On page 122 I have stated in reply to a question that the entire interest paid during that period as shown by the books amounted to $115,349.50.

Q. You say on page 153 of your deposition that you have made a statement of the result of the operations of this plant during the period that you have mentioned. Have you made that table out actually, and if so where is it?
2923 A. Yes sir I made such a statement and attached it as Exhibit "A" to my deposition.

Q. I hand you paper which I ask you to examine and see whether or not it is the exhibit you refer to?

A. Yes sir it is exhibit "A" containing six sheets.

Q. Now Mr. Nixon on page 3 of this exhibit "A" you have presented what you call a "stock plan." Were you asked anywhere to furnish a stock plan?

A. No, nor any other plan except to show the income and operating expenses for the term, which I did, based on the plan pursued and two and perhaps three other plans for explaining that the original plant was a "going concern" soon after commencing operation.

Q. Isn't it a fact that without being called upon for it, you volunteered to put into this record what you call a "Stock plan"?

A. No, I think I show the plan pursued upon which nothing was

paid on stock; another plan assuming that the stock necessary for original construction had been paid in, and the third plan based upon the payment in at the outset of the entire capital stock and traced the results, possible using the income and expenses of operation that were shown by the books.

Q. I know very well what you did, having the paper before me. My question was didn't you volunteer to put this stock plan in without being called on for it?

A. No I think this information was essential to show the result that I stated warranted the conclusion that the plan was a "going concern" during is first eight years of operation, but that it would have went better if some capital had been paid in instead of operating entirely upon an indebtedness.

Q. You were asked on page 152 if you had made up a statement showing the operation of this plant the first few years of its existence and if so to state whether or not the income was sufficient
2924 during those years to give it a fair return upon the cost of the plant? Your reply on page 152 that you had made such investigation of the books of the company for the period beginning at the commencement of operations up to December 31st 1891, which show that the gross receipts amounted during the term to $209562.00 and that operating expenses amounted to $110170.00, and that being aware of this condition you allowed no amount to cover "going concern in making a statement of replacement. You were then notified by counsel for the plaintiff that you would be called upon for an itemized statement of the account to which you referred, and would be expected to have it on cross examination. Now where in the questions asked you is any justification for putting in what you call a "Stock plan" or a "Bond plan"?

A. This is the account to which I referred, and which had already been examined by counsel for the defense, and furnishes all the information and particulars that were referred to in these questions and my replies thereto, and covers my assumptions based on the three plans of operations therein outlined.

Q. Is it not a fact that the first two pages of the six pages comprising this exhibit of yours, contains everything that is necessary to answer the questions put to you?

A. Perhaps technically construing the questions and sifting the same closely, the answer could be perhaps accomplished from the first pages, but the other pages refer to the account to which I made reference, and furnishes fuller and more complete information on the matters that were being inquired into, and for that and the other reason, that the entire account was contemplated in the inquiry, the full information was furnished.

Q. You state on page 152 that you have made an investigation of the books of the company. Now where were you asked to
2925 furnish anything except from the books of the company in this connection, and where were you asked to furnish anything from the books except an itemized statement of gross receipts and of operating expenses?

A. I stated that the information as to the gross receipts and operat-

ing expenses was furnished by the books and that I allowed no amount to cover "going concern" in making up statement of replacement cost, and as called upon for an itemized statement of the account to which I referred, I furnished the full statement of that account to which I referred, and which had been made up and examined by counsel for the city, who was aware of its contents and what it showed, and about which I understood he was making inquiry.

Q. Where did the counsel for the city ask for this stock plan or for the bond plan?

A. I don't know that he did in so many words, but I understood this was the account to which he referred, and this was the account which I understood counsel for water company to refer to when giving notice that it would be called for on cross-examination.

Q. Is this stock plan any part of itemized statement of gross receipts or of operating expenses as shown by the books? of the company?

A. Yes, sir, it is one plan upon which the operations could have been conducted.

Q. Will you swear that you had this stock plan in mind when you answered this question on page 152 and referred to the statement you had prepared on page 153?

A. Yes, sir, because this plan had been previously made up and had been examined by counsel for the city, and I understood that this full account and the information therein disclosed was the subject of his inquiry.

Q. You assumed in your first statement of stock plan that the $200000.00 of capital stock of the company was paid in, when
2926 you knew that such was not the fact. Was there any other purpose than a purely argumentative one why you should make an assumption of that kind?

A. It might be an argument, or it might be explanation, or it might — be an exhibition of the results, if that plan had been pursued.

Q. You will admit that you put it in for the purpose of making as strong a showing as possible against the water company, won't you?

A. I made up this statement to show conclusively that the water company would have been an unquestioned "going concern" from the outset if its capital stock had been paid in.

Q. Won't you admit that in inserting such a statement you were consciously assuming the functions of counsel in the case?

A. I didn't mean to infringe upon the functions of counsel, but simply to show a mathematical result to be applied by others than myself.

Mr. CALDWELL: We ask the court to exclude these papers headed "Stock plan" and "Bond plan" as not properly responsive to the question, and as irrelevant.

COMMISSIONER: I understand them to be a statement prepared by this witness.

Mr. PICKLE: Yes, sir, and it was in answer to questions asked for.

Mr. CALDWELL: Well here are the questions asked for.

COMMISSIONER: I will not exclude them for the present from the record, but if hereafter reminded by counsel will rule upon them in my report as to whether they should go in, that is after I have more thoroughly digested the contents.

2927 Mr. PICKLE: I don't want any doubt as to their being asked for, and I will state here that counsel for the city, if the question is not already broad enough, asks now for their prodiction and that the same be furnished, as it was his intention originally to ask for them.

Q. Did you make any estimate of the replacement cost of this water plant as of date September 30th, 1902?

A. No, sir, I did not; I limited my cost of replacement to March 31, 1901.

Q. Why did you limit it to that date?

A. I limited it to that date because that was the date I was asked by counsel for the defendant to furnish it.

Q. In your replacement estimate under the head of River Station, rock excavation, you fix the price of 60 cents a cubic yard on 244.4 yards of rock excavation at the boiler house and the two succeeding items. How do you get your price of 60 cents a cubic yard for rock excavation there?

A. I took into consideration the conditions that would be encountered in the excavation of the rock at the pump station for this purpose—the character of the rock, and the comparison of cost of doing the work at this place and other places, such for instance as a very large job of rock excavation in another city that is being done at 60 cents and the rock loaded on the cars, when the wages of labor and cost of explosives is higher than——

Mr. CALDWELL: I object to that answer in regard to rock excavation at other places as incompetent.

The WITNESS: How would I get at it then?

COMMISSIONER: The line is so narrow that I don't know how to exclude it; I cannot say where to draw the line.

2928 Exception taken.

A. It was on March 31st, 1901, and from these comparisons and other experiences, 60 cents a yard for this work was a fair price at that time. At the pump station there is practically no restriction on the force of the explosives, one side of the work fronting the river, and other favorable conditions I think conclusively sustained this estimate as a fair price for this rock excavation.

Q. The big job that you refer to is the removal of the hill known as "Stone Fort" at Chattanooga, isn't it?

A. Yes, sir, that is the particular job that I had in mind.

Q. When was it begun?

A. Some 3 or 4 months ago.

Q. You had made out a replacement cost before you knew anything about the Stone Fort job, hadn't you?

A. No, sir, I had observed the Stone Fort job in progress before I made out my replacement cost, and I had also obtained the price

the contractor was getting for the work, and had also observed the conditions under which it was being done.

Q. What do you allow a cubic yard for concrete?

A. In this cost of replacement for concrete at the pump station we have allowed for the different items for this construction necessary for the replacement of the plant, prices ranging from $2.85 to $4.75 per yard for Louisville, Georgia and American Portland Cement work, as the different elements of the construction required.

Q. You have allowed 15% contractors' profits, contingent expenses and engineering. What proportion of the 15% do you allow for each one of the three items named?

A. On this item of concrete and the other construction entering into the pump station building we allowed 15% aggregating
2929 $2211.07 which is made up of 10% for contractors' profit, 3% for engineering and supervision and 2% for additional contingencies or omissions.

Q. For what amount could you replace the Deane pumping engine and the Worthington pumping engine as they now stand at the pump station of the water company?

A. We replaced the present Deane engine, settings and connections charged as costing $14837.10 and the Worthington engine, settings and connections charged as costing $14496.00 a total of $29333.10 by two triplex extension horizontal duplex condensing pumping engines, each equal to the present Worthington equipment, of a 4½ million gallons capacity per 24 hours at a cost of $9000.00 each f. o. b. Knoxville, making $18000.00, foundations and settings $225.00, cartage and erection $450.00 each, $900.00, $19125.00, and of contractor's profit, engineering and contingencies of $1530.00, making $20655.00 and suction and discharge connections amounting to $1710.22, with contractor's profits, &c., of $256.53 added making $1966.75 or a total of $22621.75.

Q. You have read me an extract from your replacement account which I had before me. My question was not what it would cost to substitute something else for the Deane and Worthington engines, but what it would cost to replace the Deane engine and the Worthington engine with another Deane engine and another Worthington engine?

A. We did not undertake to replace the Deane engine as it is an obsolete machine and an expensive one to operate and proportionately costly to purchase, but replaced or substituted the present equipment with two engines of the same type and substantial duplicates of the present Worthington engine that is now doing the work
at the pump station, as a more up-to-date and economically
2930 operated equipment with a better and more reliable capacity than the present machinery, and were able to do so at a far less cost.

COMMISSIONER: Mr. Nixon, that is not in direct answer to the question.

A. We made no effort to ascertain the cost of the present Deane and Worthington engine, but of new and better equipment.

Q. Mr. Nixon, you say they were better; isn't it a fact that you know very little about this matter?

A. I have however acquired considerable information on the subject of pumping engines.

Q. Did you ever see one of these new engines that you would put over there in operation in a water plant?

A. Yes, sir, one of them is in operation at the water plant now, being the present Worthington engine which we proposed to duplicate substantially.

Q. That is the only one you ever saw, isn't it?

A. I really couldn't say as I have seen horizontal Worthington engines and other engines of this type at other places, but whether the exact pattern of the engine in operation here, I am unable to say. I obtained my information from enginemen and mechanics and manufacturers and authorities in that line upon which I relied more then a personal inspection of the machines.

Q. You don't know of your own knowledge whether or not the engines that you would substitute for the present ones are better or worse than the present Worthington engine, do you?

A. I know that they would be guaranteed by the manufacturer to accomplish all the results of the present Worthington engine, including capacity, duty, durability and all other essential particulars.

Q. Have you any personal knowledge on the subject?

2931 A. No I don't know that I have; I would rely upon the guarantees of responsible manufacturers of reputation for these requirements.

Q. You have had no personal experience have you in the operation of any article of machinery employed in the plant of the Knoxville Water Compony?

A. No sir I am not a mechanical or even a stationary engineer.

Q. Why would you put a cement cap on top of the stack up at the filter station?

A. Because in our replacement estimate we found that a cement cap that cost $3.00 would be as permanent and would fill all the requirements of the lead cap that was charged at about $40.00 in Mr. Wheeler's estimate for this chimney.

Q. Is a chimney of that kind entirely free from oscillation?

A. If a chimney is built under proper instruction, there wouldn't be much oscillation. I built one more than twice as high and never knew of any oscillation as long as I was around it.

Q. I guess you have never seen that cap since you have put it up, have you?

A. No sir and didn't see it when it was put on as I wasn't up there; 146 feet of a high chimney is too high for me.

Q. Was it a cement cap that you put on in that instance?

A. I assume that it was as it was not a lead one and cement was used in the top construction of the chimney.

Q. Why do you allow no cost for foundations of the filters?

A. It was allowed in the brick and cement, or both, but not having all the items and measurements I am not able to point it out ex-

cept one item of the brick, but I know it was discussed and intended to be provided for.

Q. But it was not provided for, was it?

2932 A. —and was done, I think.

Q. Where in this replacement account?

A. In the brick and cement and in the concrete, or both.

The further taking of this deposition was adjourned until 3:30 o'clock p. m. November 24th, 1903.

TUESDAY, *November 23rd*, 1903—3:30 o'clock p. m.

Continuation of cross-examination of W. M. NIXON by J. W. CALDWELL:

Q. Why did you allow nothing for the cost of the sewer pipes connecting the filters with the City's sewer system?

A. I find that we allowed an item of $530.12 for drains and sewers consisting of 3, 6 and 8 inch sewer pipe and some cast iron soil pipe, with man-holes and catch basins.

Q. My question was a plain simple question; why didn't you allow for the pipes themselves connecting with the sewer system of Knoxville?

A. My answer was a plain simple answer; we allowed about 1000 feet of drain pipes.

Q. Those, were the drain pipes around the houses weren't they?

A. Yes sir they were from the settling basins out into the street to where the City's sewer system should be; if the company owns sewer pipes in the streets we did not ascertain that fact or found it shown on the company's specifications.

Q. The sewer pipes that I refer to are those that drain the filters into the city sewer?

A. Well we have 867 feet of 6 and 8 inch sewer pipe, 4 man-holes and 7 catch basins, besides channel drains and a small amount of smaller pipe fittings.

Q. Let me ask you if you allowed for about 600 feet of sewer pipe in the streets laid by the water company to drain the filters

2933 into the sewer?

A. I don't think we found such an item and therefore if we didn't find it, we didn't replace it.

Q. The pumping engine at the filter station seems to be allowed by you at a somewhat larger price than Mr. Wheeler fixes for the present engine; is that a mistake of yours or of the stenographer?

A. No sir we found that the cost of this engine at the time that we replaced it was quoted at a higher price than Mr. Wheeler's estimate of what it cost some years before, being $3600.00 against $3000.00 as his price.

Q. Was that a Worthington engine you were going to put back there?

A. No sir we were going to replace the same engine that was there, being a compound duplex engine, the same specifications as the engine there.

Q. It is a Deane engine that is there now, isn't it?

A. Yes sir it is a Deane engine.

Q. Who gave you your cost for laying cast iron pipes?

A. We have costs from Mr. Wheeler, Mr. Wingfield, Mr. Ludlow, Mr. Len White, the superintendent of the Nashville Water Works, and from Mobile, but in our cost of replacement we made up a cost of laying pipe both with and without contractor's profit, the analysis of which Mr. Brown has on his book; I didn't copy it. It gives all the details, labor, lead and yarn, digging and filling and replacing and hauling pipe, watching ditches and every character of expense.

Q. These prices of laying pipe, set out on pages 12 and 13 include labor, lead, yarn, &c.?

A. I think they do, that is my recollection.

Q. What width of trenches did you allow?

A. Well Mr. Brown has that also; I don't seem to have made a memorandum of it, either of width or depth of trenches that we considered in making up this cost.

Q. How much lead do you allow say for laying 1000 feet of
2934 12 inch pipe?

A. He has this data also, as I didn't retain it, giving the quantity of lead required per joint for each size of pipe and the amount of oakum or yarn.

Q. Do you know what these amounts are independent of statements on his book?

A. No sir I do not remember them.

Q. Well do you know what they should be?

A. No sir without reference to memorandums, which I hav-n't at hand just now.

Q. Mr. Brown furnished that information himself, didn't he?

A. Yes sir he worked it out—calculated it all thoroughly and tested his calculations by some reports and experience he had.

Q. You have no such knowledge of water works construction, have you?

A. No sir that is getting down too fine for me.

Q. You allow on page 13 of Mr. Brown's deposition one cent a foot for repairing streets and rock excavations a quarter of a cent a foot. What do you propose that these prices shall cover?

A. We supposed that they should cover the rock excavation to the extent of the quantities shown by Mr. Rourk and Mr. Dearing to be encountered in this work at Knoxville.

Q. The prices stated by them in their direct or cross examinations?

A. In their direct examination, which was in effect the same.

Q. Well what do you propose to do in the way of restoring streets at a cent a foot?

A. We appear to have allowed $2871.49 for this work consisting of restoring the macadam and other materials of which the street was built.

Q. Where there is no macadam, but only dirt, is it a cent a foot there?

A. No it would not be necessary where there was no street to restore.

Q. How much do you allow when there is no macadam?
2935 A. The labor allowed in the laying of the pipe would cover that work—the back filling item.

Q. You allow nothing at all under this item of one cent a foot then for restoring streets that are not macadamized but are only dirt streets?

A. No sir we considered that allowance or back filling was ample for covering this expense.

Q. Now what do you allow per foot for macadamized streets?

A. We appear to have allowed one cent a foot over the entire distance to cover this work.

Q. Yes, but I want to know your reasons for it—what amount you think would be proper where the street is macadamized?

A. Well that could run from 1 cent to 3 cents and in some instances, perhaps more, but we figured that one cent per foot would make a full allowance for this work, considering the conditions that would be encountered.

Q. Yes, but my purpose is to test your purpose by questions, and I would now like to know what you think is a proper price per foot for restoring macadamized streets, not what a maximum price might be, or a minimum price might be, but what you regard as a proper price?

A. Well that would be subject to various conditions, as to the thickness of the macadam, and the thoroughness with which it was restored, packed and replaced, how much it was rolled or tamped, which I should say would run from 1 to 5 cents per foot.

Q. Well now will you tell me what you did actually allow for this kind of restoring?

A. No sir I don't think we separated the quantities but simply made an allowance all over the footage to cover these items. Our allowances amount to $3600.00 or $3700.00.

2936 Q. Is this a square foot or lineal foot you are referring to?

A. A lineal foot.

Q. Without regard to the width of the trenches?

A. No, we take an average width.

Q. What average width did you take?

A. I should suppose that 30 inches would be a very fair average, as some pipe would require less than that width and some large pipe a greater width than that.

Q. You say you "suppose" that; do you know what you allowed?

A. Well that is my recollection, that we discussed 30 inches as a fair average.

Q. And you are not willing to give me any more definite statement in regard to restoring macadam streets than *the* say that it is from 1 to 5 cents a foot?

A. I think this is sufficiently definite, unless based on definite specifications and conditions.

Q. You take that width range, Mr. Nixon, because of your want of acquaintance with the subject, don't you?

A. Partly and partly to be safe and conservative.

Q. Well now you allow in your cost of laying cast iron pipe in the

matter of restoring streets nothing per foot for restoring dirt streets, from 1 to 5 cents a lineal foot for restoring macadamized streets; now what do you allow for restoring brick paved streets per foot?

A. We made no separate division, intending our allowance of $2871.49 to cover all the work of this character that would be encountered. We had no measurements of the length of pipe covered with dirt alone, macadam of various thicknesses and paved streets. We knew there was not a very great quantity of pipe under brick paving, as a very small proportion of the streets of Knoxville are so paved when this pipe was laid. We considered that our al-
2937 lowance for back filling would also meet much of this expense.

Q. Do you know how much pipe is under brick paved streets?

A. No sir we didn't have a survey or data from which we could ascertain this footage on March 31st, 1901.

Q. What ought it to cost to restore a lineal foot of brick paved street over a ditch 30 inches wide?

A. I should say not over 50 cents a square yard as a maximum, under the conditions that would be encountered at Knoxville, and considering the character of brick paving that is in existence, or was at the date of the cost of replacement.

Q. How is this brick paving here constructed?

A. It is constructed of vitrified brick made, I understand, at Chilhowee, Virginia.

Q. What kind of a foundation has it?

A. I assume, without knowing, that it is on concrete foundation, or broken stone and concrete.

Q. Do you know what the water company has been paying for replacing brick paving streets?

A. I don't recall; I notice they have been paying $1.50 a yard for replacing marbleoid or granolithic pavements around small jobs.

Q. Hav-n't you seen vouchers in the office of the company showing that the company pays $1.50 a yard for restoring brick pavement over its trenches, and that too where the old bricks are used in making the restoration?

A. I don't recall having had my attention fixed on these vouchers, but should not have given them very much consideration if I had, as they would have related to small jobs of repairing and work of such character and not of much value as against a general replacement of all the pipe in the City under brick pavement at comparatively one time.

Q. Don't you know that the vouchers of the company show that this price of restoring brick pavement has been paid all the
2938 time for large jobs and small jobs alike?

A. I think I have already answered this question.

Q. Well I didn't hear it; if it is not too much trouble I will ask you to answer it again?

A. Repeating my former answer would say that I did not notice or have my attention fixed on such vouchers, and that if I had encountered them I would not have given them very great consideration, or considered them of very much value for the reason that they

cover small patch work jobs largely and could not be considered as against one general contract or undertaking for restoring all the brick pavement in Knoxville that is over water pipe, or was on March 31, 1901.

Q. How much pipe is there laid under brick pavements in Knoxville?

A. I have already answered that I have seen no specifications or information on this that would advise me as to this quantity, and did not make a survey to ascertain. I don't recall that there is any information on this subject disclosed by Mr. Wheeler's estimate.

Q. You have also answered that "there wasn't much of it" and that answer certainly assumed some knowledge of the subject, and I ask you what allowance, if any, you made, or if you made none what allowance you now make as to the length of cast iron pipe under brick pavements?

A. I don't recall the allowance we made for this purpose, and don't make any, and could not give the proportion of brick paved streets in Knoxville, but would estimate that they are not over 1 per cent. of the entire length of the streets in the City.

Q. What per cent. of the pipe lines of the City here would that be, one per cent. or more?

A. I couldn't say as I don't apprehend that there is a pipe under every foot of brick paving in the City—there is not a water
2939 pipe under every street in the City.

Q. You say you couldn't find anywhere a statement of the amount of pipe laid in brick paved streets?

A. I don't recall now that I encountered this information.

Q. I wish you would look at page 540 of the deposition of William Wheeler, the tenth line from the bottom and say if it does not appear there that Mr. Wheeler uses the following language, "Replacing paving on 16473 lin. feet at 60 cents $9883.80"?

A. There is such a statement on page 540, Volume "2" of William Wheeler's deposition, which is discussing replacement, September 30th 1902, a year and a half after the date which I had under consideration for cost of replacement, and which statement I don't think I ever read, as I had no use for it.

Q. If no brick paving has been done in Knoxville since March 31, 1901, how much, at your prices, would it cost to restore 16473 lineal feet of brick paving?

A. At 50 cents a yard, 16473 lineal feet of paving 30 inches wide would cost approximately $6800.00.

Q. Now your total footage of cast iron pipe is 287149.2; 16000 feet would be a little over three miles wouldn't it?

A. Our total footage was 287,149.2 feet is the cast iron pipe existing on March 31, 1901 as given by Mr. Kimball, and 16473 feet of course is a little more than three miles, as three miles is 15,840 feet.

Q. And the 287,149.2 is about 54½ miles, isn't it?

A. It is less than 54.4 miles.

Q. If you take off the 16473 feet you would have 260,676 feet remaining, which at one cent a foot would make $2606.76 for that remainder, wouldn't it?

A. I assume the calculation you indicate would be correct,
2940 but I wouldn't admit that the one cent allowance would be applicable to all this footage.

Q. You have allowed it in your replacement cost as applicable hav-n't you?

A. No sir I have stated in a former answer that where there was no macadam that the allowance or back filling would take care of this expense and thus very much enhance this allowance for other portions of the footage where the conditions would demand more expenditure.

Q. Well how much did you allow for restoring streets under your heading of cost of wrought iron pipe?

A. On wrought iron pipe we allowed from 4 cents to 4 1/10 cents and 4 3/10 cents and 4 5/10 cents per foot for the digging of the ditch, laying the pipe, refilling and restoring, &c. The analysis of this cost Prof. Brown also retained and I did not copy. This analysis shows all the elements of this cost.

Q. Where does that appear in your replacement statement?

A. Where does it appear?

Q. What do you allow as you have just stated in your last answer for ditching and restoring streets; I mean where does it occur in connection with wrought iron pipe?

A. It is included in the cost of laying this pipe without separation of the different elements, as I have stated Prof. Brown can give you when he comes on the stand all the elements of this cost, as I did not retain same on my memorandum.

Q. Did you know at the time, or did you ever know what they were?

A. Yes sir they were all figured out.

Q. Who figured them out?

A. Prof. Brown and myself.

Q. From whom did you get your cost of fire hydrants?

A. We had prices from two or three manufacturers—I don't recall the names of all of them—and figured the list of same and the deduction for reduction in the "bury" the trade discount allowed, the cost of setting, giving us the net cost of the hydrants installed at the figures shown.

2941 Q. Were these prices for hydrants set?

A. Yes sir they included the setting.

Q. Connections and everything else?

A. Yes sir.

Q. You understand Mr. Nixon that the correspondence upon this as in the other matter in the replacement account, is called for?

A. I think Prof. Brown has this. These prices are full high, as Mr. Spiro testified in the old case that the original hydrants only cost $18.00.

Q. Who pray, is Mr. Spiro?

A. He said in his deposition that he was chief of the Fire Department some years.

Q. He didn't correspond with the same people you did to get hydrant prices, did he?

A. No, they seem to have been bought cheaper originally than the prices we are able to secure.

Q. What is the cost of a five-eighth (inch) meter?

A. We seem to have figured them in this cost of replacement at $8.85, there being 104 of them, and allowed $1.15 for setting them.

Q. What kind?

A. We had several kinds under consideration, and undertook to select makes or kinds to correspond with those in use here as closely as possible, using Mr. Kimball's list of purchases to guide us.

Q. What kinds are in use here?

A. I would have to refer to my memorandum. There seemed to be several kinds—the Hersey, National and others, the names of which escape me just now.

Q. What is the cost of a 4 inch meter?

A. We figured the cost of 4 inch meters in our replacement cost at $202.00 net and $3.00 for setting, or $205.00. There appears to be only two of them in this plant, on March 31st, 1901.

Q. Why do you allow only 427 service connections in your
2942 replacement account?

A. Because the record shows that that is all the connections that belong to the company; the other service connections hav'n't been paid for by the water takers.

Q. What part of the cost of the other service connections does the company pay, and what part does the lot owner pay? Perhaps you may remember; don't the lot owner pay only $5.00 and the company pay the remainder of the cost?

A. There appears to be two or three plans by which these services are put in; for a time the taker paid all the expenses, and for another time, he paid $5.00, and for the term in question, which covered the 427 services allowed, the company put them in at the company's entire expense.

Q. Well if the company paid anything at all on services additional to the 427, and those had to be replaced, it would cost the company correspondinly, wouldn't it?

A. The evidence of Mr. Rourk or Mr. Dearing shows that the cost of these services was about $5.00, so that if the company has collected $8.00 and more for a part of them and received $5.00 for another portion and only installed the 427, that the amount allowed for this element of the plant appears to have been sufficient, as in this replacement it was only necessary to restore or replace 427 services as belonging to the company, and from the evidence in the record, this could have been done at a cost of $5.00 each, and we accordingly allowed that amount as the fair cost of same.

Q. Leaving the 427 services out of consideration, if the restoration of the remainder would cost the company anything at all, then that should be allowed in this replacement, shouldn't it?

A. Yes sir if there were such expenses it should of course be allowed, but such expense appears to have been covered in operating expenses or put in by the operating force and a profit to the company received on this character of work.

Q. How many gates are there in the system of the Knox-
2943 ville Water Company?

A. Mr. Kimball's certificate on the Pipe book shows that there were 661 gate valves and stop-cocks in use on March 31, 1901.

Q. How many sizes?

A. From a half inch to twenty inches in size.

Q. What do you allow for a twenty inch gate?

A. We allowed a net price of $95.63 and find eight of them in service at that time.

Q. Did you get these prices for gates and valves through correspondence also?

A. Yes sir we secured these prices from the manufacturers.

Q. Please file that correspondence so that we can examine it?

A. I think we borrowed this correspondence from a supply house in Nashville. We can perhaps give you copies, as this investigation related to a back date when present day prices would not be practical, and therefore we had to seek other means of securing this information. If I recall, we had this data from three or four sources.

Q. Upon what principle do you assign to $379,704.77, $10000.00 as a proper allowance for expenses of organization, promotion, &c.?

A. Upon the principle that a company being organized and promoted for the purpose of the construction of a plant of the magnitude indicated, would necessarily incur some expense for taking out a charter, and other expenses of that character which no doubt would not reach one-half the amount we allowed, but to be conservative we doubled it up and allowed $10000.00.

Q. Do I understand you to say that your present judgment is that $5000.00 would be enough?

A. Yes sir I know of a company of $200,000.00 capital organized lately where such expenses wouldn't cost $1000.00.

Mr. CALDWELL: I object to the answer and ask that the same be stricken out as not responsive.

2944 COMMISSIONER: Let it stand.

Exception taken.

Q. When you came to make out what you denominate a statement of comparative values, you cut down the cost of pumping engines, boilers and connections from $31970.99 to $21420.00. Why did you make that particular deduction?

A. In our estimate of cost of replacement of pumping engines, boilers and connections we figured the same as aggregating $31970.99 complete and new. We figured one set of boilers good for 15 years, one year of its life or 1/16 having gone; one set at $3500.00 good for five years, 12 years having gone, or 12/17 equal to $1000.00 remaining, and pumping engines one at $12500.00 good for five years, being a loss of 6/11 of its life leaving $6700.00, and one at $10000.00 good for 15 years and 1/16 of its life having gone, leaving $9334.00, or a total of $21420.00 of comparative value remaining as against $31970.00 new.

Q. That $21420.00 represents the value March 31, 1901 in your judgment of the pumping engines, boilers and connections?

A. Yes sir as compared with the machinery then existing with the same machinery at the same time new. We used Mr. Wheeler's figures as to the average life of the different elements of the plant generally.

Q. Then you endorse generally his statement of the average life of the different elements of the plant?

A. Yes sir in the majority of instances.

Q. What is the life of a reservoir like this one over here?

A. We adopted 36 years, with 18 years gone, 18 years expectancy. Its value new being $10532.00, one-half gone leaving $5500.00 value remaining.

Q. What reason had you for cutting down Mr. Wheeler's
2945 estimate of the life of the reservoir?

A. We didn't do it. He gave it as from 30 to 40 years and we adopted 36 years.

Q. What was cast iron pipe selling for on the market in 1900?

A. One pipe works says from $17.00 to $20.00 from November the 1st 1900 to April 1st, 1901, and another one says the average price obtained for sales during that time was $19.00 at Lynchburg.

Q. Have you that correspondence?

A. Yes sir.

Q. Please have it filed with the rest of it for inspection?

A. All right sir.

Q. You have been asked several times back in the earlier part of your examination to furnish certain information that you have overlooked?

A. I thought I had secured it all.

Q. You were to furnish the accounts of Wheeler and Parks and of William Wheeler from the books of the water company showing cash payments from 1893 to 1897, amounting as you stated in the neighborhood of $56000.00 as testified by the Treasurer as showing cash paid for construction during these years. You will find that referred to on page 278 of your deposition?

A. I can supply this as I think I have a memorandum of it already in my tab. However this was only used in my direct examination to ascertain the amount of the construction paid for in bonds for a given period and not as cutting any figure as to the status of the account. It is as follows:

Wheeler and Parks Accounts.

To cash	$42421.95	By salary &c	$9148.65
" Stock	675000.00	" Contract	675500.00
" Supplies	2857.21	" Supplies	12475.99
" Interest	30.75	" Office furniture	33.66
" Notes payable	1212.81	" extensions	16510.82

2946

To N. Knox. W. Co.	$5415.11	By Kimball services	$258.22
	50.75	" Cash	2546.05
		" Expenses	5648.48

		By Construction.....	757.33
		" Repairs.....	543.92
		" H. S. & F. Sta.....	389.44
		" Tools.....	61.38
		" N. Knox. W. Co...	2983.92
		" New Services.....	46.92
		" Insurance.....	96.40
		" Franchise.....	188.99
		" Interest.....	483.48
	$727,437.83		$727,580.10

Williams Wheeler, Successor Wheeler & Parks.

To Cash.....	$7329.09	By Cash.....	$1001.91
" Stock.....	9500.00	" Salary.....	3681.34
" Reduction on Pump.....	1000.00	" Extensions.....	649.03
		" H. S. & F. Sta.....	85.27
		" Expense.....	247.67
		" Supplies.....	247.94
		" Repairs.....	7.01
		" New Services.....	178.65
		" Contracts.....	9500.00
		" Interest.....	716.76
		" Insurance.....	150.00
		" Construction.....	1447.46
	$17,829.09		$17,829.09

Summary.

Charges in excess of Stock.....	$52,437.83
William Wheeler.....	7,329.09
	$59,766.92
Less N. Knoxville.....	5,415.11
	$54,351.81

2947 Q. You were also asked to furnish a statement or estimate of brick laid in Portland cement aggregating $10.00 a thousand, as you will see by page "33" of your deposition?

A. I don't think I promised brick in cement at $10.00 but brick in lime at $10.00. The statement is as follows:—

Referring to Pages "33" and 453 et seq.

Brick for excess estimates:

75,000	at $10.00	$750.00
156,000	" 8.00	1248.00
2,300	" $12.00	27.60
35,000	" $15.00	525.00
268,300		$2550.60

say average of $10.00

18934–5–6–and 7 put in wall at Knoxville at $7.00 to $7.50 in Lime mortar.

For Cement.

add 1½ to 2 barrels Louisville cement at 70 to 75 cents
" 1 barrrel Portland at $2.50 per 1000.

Analysis of Brick Cost in Lime.

	To 1892.	1893 to '98.	1900 to '01.	1903.
Brick	$7.00	$5.50	$6.00	$6.50
Mason and helper	1.75	1.90	2.00	2.25
Sand, lime, water & scaffolding.	.75	.60	.75	.75
	9.50	8.00	8.75	9.50

Master Chattanooga case brick in wall, lime and cement $9.00.
Ludlow, Company's witness, Vol. 3, 33, 37, common brick $8.00, cement $12.00. If correct to $12.00 amount to $526.00.

The further taking of this deposition was adjourned until Wednesday morning November 25th, 1903.

2948

WEDNESDAY MORNING,
November 25th, 1903—9 o'clock a. m.

Redirect examination by G. W. PICKLE:

Q. Mr. Nixon, you have estimated the original cost of the Knoxville Water Company's plant up to sometime in 1884 at from $110,000 to $112,000 including therein real estate and allowances for contractor's profits and risks, engineering &c. Now on pages 292 and 293 of William Wheeler's deposition in this case, he has estimated the cost of original construction at $128,000.00, including therein 20 per cent. for contractor's profits and risks, engineering &c., but excluding from this amount real estate. On page "23" of his deposition, it appears that the real estate owned by the company at that date was valued at $7800.00, making Mr. Wheeler's total estimate of the cost of the plant at that date $135,800.00 as against your estimate of $110,000 to $112,000, a difference of

$23,000 to $25,000. Now I will ask you how much of this $128,000 entering into Mr. Wheeler's aggregate is 20 per cent. for contractor's profits &c.?

A. One-sixth or about $21,000.00.

Q. On pages 293 and 294 of Mr. Wheeler's deposition, he gives the items that make up the $128,000 above referred to, or to be more exact $128,063.58 as follows: Engine house and pit $9730.70, Boiler house $1060.40, Tool house $161.40, coal chute $543.31, Store house and fence $289.80, Davidson Pumping Machinery and foundations $14700.00, Suction and discharge pipes and connections pertaining to pump machinery $2443.51, Boiler and appurtenances $3042.00, Reservoir $33000.00, Street mains and appurtenances $63093.12, making up the total of $128063.58. As above indicated the reservoir enters into this amount at an estimate of $33000.00; to what extent is this estimate excessive?

A. About $23000.00.

2949 Q. What is shown by the last of the balance sheets heretofore referred to in your deposition as the cost of the reservoir?

A. It is $9850.00 or $9860.00, I forget the exact amount.

Q. Now it further appears from the above quoted statement of Mr. Wheeler's deposition that street mains and appurtenances enter into said estimate at $63093.12. At what price is cast iron pipe figured into this estimate; I mean the naked pipe outside of the laying, of rock excavation and restoring macadam?

A. $35.00 a ton and 20%, or a total of $42.00 a ton.

Q. Then the effect of Mr. Wheeler's treatment of cast iron pipe in his statement is to place the naked pipe in this estimate at $42.00 per ton, is it?

A. Yes sir the naked pipe at $42.00 per ton before laying or the additional cost added thereto.

Q. What amount of pipe entered into this original construction in tons according to Mr. Wheeler's estimate, and what would be the over estimate on this account treating the pipe as worth $35.00 per ton only and that $7.00 added would be excessive?

A. He gives a footage of 47395 feet which computed at the weights shown by him aggregates a tonnage of 942 tons, which multiplied by $7.00 gives an amount of $6594.00.

Q. At what price are common brick figured into this estimate of Mr. Wheeler's with the 20% added?

A. At $15.00 plus 20% or $18.00 per thousand.

Q. What would be a fair price?

A. From the evidence adduced so far $12.00 would have been a full price at that time.

Q. Have you made an estimate of the overcharge on account of brick; if so give the amount?

A. Yes sir it would be $810.00.

Q. At what price is rock excavation in trenches and other
2950 places figured into this estimate?

A. At $1.87½ at the pump station and $1.75 for excavation of ditches for pipe.

Q. Mr. Nixon how was machinery treated in this estimate such as the Davidson Pump Engine and other like machinery; at what prices did it go in? Take for example the Davidson Pumping Engine as an illustration—you needn't go through with the several items?

A. The Davidson Pumping Engines and foundations stated the cost $10000.00 for the pumps and $1000 for foundations were figured in this estimate plus 20% or $13200.00 and suction and discharge connections the same way.

Q. At what price does the naked engine which is figured at a cost of $10000.00 enter into this estimate?

A. At $13200.00 for engine and settings, being $11000.00 plus $2200.00 for the 20%.

Q. But the engine standing alone, at what figure does it enter into this estimate?

A. At $12000.00 in this estimate thought it cost $10000.00.

Q. I believe you have stated, if not state how the fact is, if this original construction was done by the water company directly or by contractors as appears from the books?

A. The books show this construction was done by and in the name of the Knoxville Water Company.

Q. Now Mr. Nixon I will ask you to state what items of this original construction is figured out by Mr. Wheeler in his table of depreciation as having completely disappeared from the plant on the 31st of December 1891, or what portions of these several items?

A. $3806.34 of the $9730.00 charged for engine house and $1060.40 or all the charge for boiler house, $161.40 or the total charge for tool and storage house, $2163.74 of the $2238.74
2951 charged for chimney stack, $227.31 of the $543.31 charged for coal chute, $289.80 or the total charged for store house and fencing, $16048.51 of the $17143.51 charged for Davidson engines, foundations and appurtenances, $2597.00 of the $3042.00 charged for boilers and $16063.38 of the charge of $63093.12 for distribution pipe system, also $2297.00 of the $2982.00 charged for second battery of boilers and $2000.00 of the charge for teams, tools, &c., which I believe completes the depreciation.

Q. Those items that you have given are for complete or culminated depreciation?

A. Yes sir for complete or culminated depreciation up to the 31st of December 1891.

Q. Are there other items shown in Mr. Wheeler's table for incomplete depreciation on the items that remain?

A. Yes sir there are other items of incomplete depreciation on these parts of the original construction as shown by Mr. Wheeler in his table up to the same date, to-wit: December 31, 1891.

Q. Now Mr. Nixon you have estimated the cost of this plant and everything that entered into it whether it had gone out by depreciation or not as of December 31, 1891 at about $152000.00. Mr. Wheeler has estimated the fair construction cost up to that date at $221943.00 as against your $152000.00, both estimates including as I understand real estate. Now I will ask you to state what amount,

and give the items of culminated depreciation which enters into Mr. Wheeler's $221943.00 as of that date as shown by his table pages "166-A" of his deposition and following pages—give the items and their totals?

A. The items I have just recited in the previous answer would be the items, or a total amount of $46714.52 of complete or
2952 culminated depreciation.

Q. Deducting from his aggregate of $221943.00 this amount of culminated depreciation for parts of the plant that had then disappeared, what amount would remain?

A. $175229.36 would remain.

Q. Now give from Mr. Wheeler's table the items of incomplete depreciation from the table above referred to, and the aggregate of those items?

A. The incomplete depreciation that he shows on the parts of the plant that are included in his estimate of $221943.00 are $2585.06 on engine house, $11077.72 on reservoir and $24945.67 on pipe distribution system, making a total of $38608.45.

Q. Deducting the incomplete depreciation from the amount above left after deducting complete depreciation, what amount remains in the plant as of date December 31, 1891?

A. $136620.91.

Q. Now Mr. Nixon at what price is cast iron pipe figured into this plant during the period of its original construction and for extensions made up to December 31, 1891?

A. It is figured on the basis of $35.00 plus 20% or a total of $42.00 per ton for the naked pipe entering into this construction?

Q. Treating the $7.00 as excessive, what would the amount of this excess be?

A. Figuring the footage of 101597.4 feet shown by Mr. Wheeler as composing this original construction and additions at the weight per foot that he shows as applicable to this pipe, produces a tonnage of 1802 tons, which at $7.00 per ton overcharge amounts to $12614.00.

Q. At what price or prices do rock excavation enter into all the construction of this plant as estimated by Mr. Wheeler up to
2953 December 31st 1891?

A. Rock excavation at the pump station is charged at $1.87½ a yard. Rock excavation in ditches for laying pipe is charged at $1.75 per yard.

Q. Is this charge for rock excavation excessive; if so, to what extent?

A. Yes sir, as shown by the record it is excessive by $.75 for the ditches and $.87½ for the pump station excavation per yard respectively.

Q. Have you or not found it excessive in the amount charged in Mr. Wheeler's estimate?

A. Yes sir, we have found it excessive in the quantities of this work charged.

Q. At what price are brick figured into this construction up to 1891—common brick?

A. $15.00 plus 20 per cent., or $18.00 per thousand, an overcharge of about $6.00 per thousand—say $810.00.

Q. At what price is the reservoir figured into this estimate of Mr. Wheeler's as of the 31st of December 1891?

A. $33,000.00.

Q. To what extent is it excessive in this estimate?

A. About $23,000.00.

Q. Please explain how machinery, such as the Davidson pumping engine and other machinery is figured into this estimate?

A. The pumps costing $10,000.00 are charged at $12,000.00. The foundations reported as costing $1100.00 are charged at an advance of 20 per cent., as is the suction and discharge connections and boilers.

Q. What is the amount of the 20 per cent. that enters into the estimate of Mr. Wheeler as of this date for contractor's profits &c.?

A. It is over $35,000.00.

Q. Mr. Nixon, what is the amount shown by the last of the
2954 balance sheets that you have heretofore referred to, as cost of labor and material for the pump station?

A. It is my recollection $27,000.00 and some odd dollars; I hav-n't the figures before me pust now.

Q. On your cross examination in speaking of the excavation of rock at this pump station, you were made apparently to state that explosives or the cost of explosives was to be added to the price of $1.10 for excavation at that station. I will ask you whether or not you have, since your cross examination read the deposition of Mr. Hood, and if so, please explain this matter fully?

A. Since my cross examination, I have examined Mr. Hood's deposition, and find that I was under a misapprehension as to this matter, having inferred that Hood & Brother did this excavation by contract at $1.10 per yard, and that the excavation computed at these rates made up the cost shown on the books of $1809.00, but upon an examination of the deposition I find that the bid of $1.10 per yard of Hood & Brother was made to the Water Company to do this work, but that it was not accepted, and these parties were employed on wages, and the construction was done on Company account, which aggregated the cost shown, and that I was in error in assuming that the cost of this work was $1.10 per yard plus the cost of explosives.

Q. State whether the amount that this work cost, to wit: $1809.00 shown by the books, is more or less than $1.10 per yard for the work?

A. Mr. Hood states that it was less and less by $7000.00 than the engineer's estimate of the cost of this work.

Q. Then what you mean is that the explosives would be added to the actual cost of the labor to the excavation and not to the $1.10 per yard, is it?

A. Yes sir, that is the meaning I intended to convey. I
2955 made an effort to find the exact cost of this item of explosives but wasn't able to do so.

Q. Mr. Nixon, in Mr. Wheeler's estimate of fair construction cost

of this plant up to March 31, 1901 is there included any claim for restoring brick pavement in the laying of pipe?

A. No sir, I am unable to find that he shows that any pipe was laid up to that time under brick pavement, the pipe evidently having been laid before there was a brick pavement, or the pavement was laid after the pipe was placed.

Q. Mr. Nixon in making your estimate of the cost of this plant up to December 31, 1891, state whether or not you adopted the prices of pipe paid by the company as shown by its books as a basis of your action?

A. Yes sir I used the prices that the company paid and charged, and didn't undertake to revise anything in that respect.

Q. Now is cast iron pipe cheaper or more expensive, as a rule, since 1891 than before, and if so what are the causes that have operated to make it so?

A. For a term of years after 1891 as compared with the same number of years before that date, cast iron pipe has been much cheaper caused by a number of conditions, the most important of which perhaps is the improved methods of manufacturing, casting the pipe on end as against longitudinally as formerly, the handling of the pipe hot by machinery against hand method formerly employed, the great increase in the production of pipe resulting in a correspondingly reduced cost of production, and another very important factor is the cheaper cost of the pig iron for a large part of the time, and another important element is the ability to use a cheaper mixture of pig iron by analysis than was the practice before 1891, and there are other explanations that might be given why
2956 cast iron pipe costs less to produce since 1891 than before.

Q. Mr. Nixon are the purchases of cast iron pipe or the prices at which retail quantities are purchased, a fair criterion of the market value of pipe, and if not state the reasons why it is not?

A. I should not regard a straggling purchase of one or more cars of pipe as a criterion of the market conditions or the possibilities in purchasing at a much less price a large quantity of pipe for which competition was secured. I notice in an inquiry from a Pipe Company that they refer to sales of 500 tons and more in competition as a fair basis showing the ruling values or prices at the time under discussion.

Q. Could or not pipe be obtained up to March 31, 1901 and prior to that date by competitive bidding, or had the pipe business then passed into the hands of a trust?

A. A considerable competition could have been secured as late as 1901, notwithstanding the combinations into a trust of the majority of the Pipe works of the country, but the transactions at that time show that there was still some competition as there is at this date. A sales agent of a large pipe association informed me of a recent large sale at prices below cost, or even present cost on account of the conditions entering into the sale.

Q. Mr. Nixon you were asked to produce a couple of letters on yesterday on cross examination. If you have not done so will you place them on file, or copy them in your deposition, and make such

explanations as you desire of the circumstances under which they were received and their contents?

A. The letters are as follows:

2957 The Dimmick Pipe Company, Manufacturers of Cast-iron Pipe, Hydrants, and Valves.

All agreements subject to strikes, accidents or other causes beyond our control.

Address all communications to the Company in order to receive prompt attention.

BIRMINGHAM, ALA., *Nov. 6th*, 1903.

Mr. W. M. Nixon, Chattanooga, Tennessee.

DEAR SIR: Replying to your favor of 26th inst. beg to advise that a careful survey of our past records shows that on competitive orders secured from November 1st 1900 to April 1st 1901, prices ranged from $17.00 net ton to $20.00 net ton f. o. b. cars our foundry. These are the prices applying on contracts for tonnage of 500 tons and more, where the letting was well advertised, and freight rates enabled the various manufacturers to compete for the orders, that is, with the exception of the Glamorgan Co. Lynchburg, Va. We do not find that we secured an order during the period alluded to in the territory that is tributary to their foundries.

Yours very truly,

THE DIMMICK PIPE CO.
C. BLAIR, *Secretary.*

Quotations made subject to market changes, strikes and accidents.

M. J. Drummond, Pres. A. M. Campbell, Sec. & Tr.

W. C. Foster, Vice Pres. & Gen. Man.
W. J. Drummond, 2nd Vice Pres.

The Glamorgan Pipe and Foundry Co., Manufacturers of Cast-iron Gas and Water Pipe, Special Castings, Hydrants, and Valves, General Founders and Machinists.

Works: Lynchburg, Va. Bradford, Va.
Office: Lynchburg, Va.

LYNCHBURG, VA., *Nov. 13th*, 1903.

Mr. W. M. Nixon, Knoxville, Tenn.

DEAR SIR: Replying to yours of the 10th inst. we beg to advise that the average price of cast iron pipe during the latter part of 1900 and early 1901 was about $19.00 per net ton f. o. b. foundry. Our rate to Chattanooga is $6.20 per net ton.

If we can give you any further information, kindly command us.

Yours truly,

THE GLAMORGAN PIPE & FOUNDRY CO.
A. M. CAMPBELL, *Treas.*

AMC/PL.

2958 A. The above letters are in response to an inquiry I made of these pipe companies, as to the prevailing prices at which they were selling, or contracting for substantial quantities of pipe, from November 1st 1900 to April 1st 1901. The Dimmick Pipe Company appears to have responded in accordance with the inquiry, explaining that their figures were based on contracts for tonnage of 500 tons or more, but the Glamorgan Pipe & Foundry Co. bases the price given on the average price of cast iron pipe during the latter part of the year 1900 and early part of 1901, which of course would include the consideration of small sales at practically retail prices, and would not be as fair a basis as that given by the Dimmick Pipe Company of Birmingham.

Q. Now Mr. Nixon, passing to the operating expenses on the books of the company, were the accounts of construction and operating expenses kept originally separate or intermingled?

A. During the Lowerce and Martine administrations, there appear to have been much confusion and mixture of these accounts, although some attempt was made to separate them, but when the Martine books were closed and the balances carried into the Wheeler, or Wheeler and Parks management, a separation, or segregation of these accounts was made up and the operating expenses and construction or betterments separated and the balances carried forward in conformity with that separation.

Q. Was that separation stated in an aggregate amount as to operating expenses as of that date, if so what was the amount?

A. Yes sir the books show the aggregate amount of operating expenses for that 8 year period as carried forward to the new books at $106170.00 as I remember. This was the amount that I used, adding thereto $3000.00 of legal expenses and an item of $1000.00 for a personal injury that was carried forward in other accounts,
2959 making my report of operating expenses for that period $110170.00.

Q. Then the water company had undertaken to segregate and separate operating expenses and to state the result on the books at the figure you have stated, had it?

A. They did so and I used these figures.

Q. And you used these figures with the items you have stated added, thereby increasing the operating expenses that you allow the company in your statement?

A. Yes sir this is true.

Q. Mr. Nixon I want to ask you in regard to the method of keeping accounts pursued by the Water Company as shown by its books, and will ask you to state whether or not there was at any time an account kept of such replacement items as is covered by the 2% that is ordinarily allowed for replacement; I mean a separate account of this matter?

A. No sir all the expenditures made by the company appear to have been charged either to operating expenses or to construction, and no part of the expenditure has been separated or set aside to be covered by a renewal fund or allowance for that purpose. There are two items on the books where charges have been made to depreciа-

tion from the net earnings of the company, but this is the only instance of the consideration of this principle by the water company as shown by its books.

Q. And you found that in such matters as painting standpipes, stone steps, &c. the items were charged to repairs and went into operating expenses, do you?

A. Yes sir that is the method by which these expenditures were treated.

Q. Will you give some of the items of painting that went into operating expenses?

A. Painting standpipe at what appears to me to be a very extravagant cost, being over $800.00 for one pipe and $400.00 for
2930 the other, when contractors in their estimates for the cost of standpipes of these dimensions, allow $100.00 to cover this part of the cost, and other renewals of painting at the pump station and filter station that had been originally a part of the construction.

Q. Now Mr. Nixon taking past years in which all charges for construction or operation have been already placed in either the operating expense account or in the construction account as presented in this case for such years should there or not be allowed an additional sum of 2%, or any per cent. on the value of the plant for replacements?

A. The Company having covered all the expenditures either by operating expenses or construction cost appear to have not set aside or left any part of the plant to be covered by such an allowance, there being nothing to be covered by such fund.

Q. State whether or not in such case such an allowance would be a mere gratuity to the Company, and in effect requiring the public to pay for replacement twice?

Mr. CALDWELL: We object to the question as leading.
Over-ruled. Exception taken.

A. Under such circumstances as you have recited, I would so consider such allowance.

Q. Mr. Nixon in the course of your Cross-examination you have had your attention called to some of the items that you had stricken out of the operating expenses, and which you therein conceded to have been incorrectly stricken out. I will ask you to file a corrected statement for the years 1900-1901 and 1901-1902 after correcting the item that you concede to have been incorrectly stricken out, and show the correct balance for operating expenses for those years, and I will ask you to show the result after correction by appropriate table?

A. I have made such a table and it is as follows:

2961 *Summary Income and Operating Expenses, Knoxville Water Co.*

	1900-'1.	1901-'2.	Total.	Average.
Balance Water a/c	$93207.08	$101346.91	$194553.99	97276.99
Less abatements	4224.01	4502.01	8726.02	4363.01
	88983.07	96844.90	185827.97	92913.98
Less rebates	292.89	327.65	620.54	310.27
Net Water income	88690.18	96517.25	185207.43	92603.71
Taps	878.45	2395.84	3274.29	1637.15
Supplies	1503.91	2646.89	4150.80	2075.40
Total income	91072.54	101559.98	192632.52	96316.26
Less operating expenses, improper deductions restored	30827.52	30279.24	61106.76	30553.39
Surplus	60245.02	71280.74	131525.76	65762.88

A. The table is the same as shown on page 134 of direct examination, eliminating therefrom the additions to balance of water receipts, and adding to operating expenses the items that were disclosed by cross examination as having been improperly deducted except that in this new table I have omitted entirely the year 1899-1900; as the income and to some extent the operating expenses were intermingled or mixed with the business of the Lonsdale-Beaumont Water Company, and I therefore left that year out entirely on this table.

Mr. CALDWELL: I am going to give the witness fair warning that we will ask for our right of cross examination, that it has already been put in in chief and corrected on cross examination.

Q. Now Mr. Nixon have you made up a table on your corrected statement of income showing the difference between receipts under the water company's ordinance and the estimated receipts under the city's ordinance for the years 1900-1901 and 1901-1902; if so please file that?

Mr. CALDWELL: We object to the same.
Over-ruled. Exception taken.

2962 A. I have made up a table giving a comparison of the income derived by the company under existing rates with the reduction therefrom produced by the change of rates proposed by the City's schedule and deducting therefrom the operating expenses as corrected in the foregoing table for the years 1900-1901 and 1901-1902 and the average for the two years combined. The table is as follows:

Comparison of Results Company Rates and Schedule of City Ordinance of March 31st, 1901.

	1900-'1.	1901-'2.	Average.
Water Receipts.....	$93207.08	$101346.91	$97276.99
No abatements.....	.....	.....	.....
Less 18% Reduction.....	16777.27	18242.44	17509.85
	$76429.81	$83104.47	$79767.14
Less Rebates.....	292.89	327.65	310.27
Net Water Receipts.....	$76136.92	$82776.82	$79456.87
Taps.....	878.45	2395.84	1637.15
Supplies.....	1503.91	2646.89	2075.40
Net Income.....	$78519.28	$87819.55	$83169.42
Less Operating Expenses...	30827.52	30279.24	30553.39
Surplus.....	$47691.76	$57540.31	$52616.04

COMMISSIONER: I understand this to be simply a change in form of statement already in the correction of admitted errors in the former statement of the witness and not to constitute new matter covering another period, and to that the witness answers "that is correct."

Q. Now Mr. Nixon what amount of uncollected water accounts was carried from the year 1899-1900 into the year 1900-1901 and what amount was carried out of that year into the year 1901-1902 and give the difference?

A. The amount of uncollected accounts for water bills
2963 from the year 1899-1900 and brought over into the year 1900-1901 was $7645.13. The amount of such uncollected accounts at the end of the year 1900-1901 was $7853.92, which amount was carried forward into the year 1901-1902. The increase of these accounts during the year 1900-1901 was $208.79.

Q. Now how was it the next year?

A. The next year being 1901-1902 the amount of uncollected accounts brought over from the previous year was $7853.92, the amount of such accounts at the end of the year 1901-1902 was $8919.05 which was carried forward to the next year, the increase or gain in these uncollected accounts during the year 1901-1902 being $1065.13.

Q. Now how did you treat these balances in your original statement and how have you treated them in your corrected statement?

A. In my original statement I treated these gains in the accounts as additions to the balances of water account that was used by the company and carried into Profit and Loss account, but in the present or last statement I dropped these increases of accounts and con-

sidered them as included in the balances that were used and carried to Profit and Loss account.

Q. Now Mr. Nixon you have dropped the year 1899-1900 in these statements; I will ask you for what reasons?

A. As explained in a previous answer, the books showed both the income and operating expenses for that year mixed and mingled and complicated with the affairs of the Lonsdale-Beaumont Water company for a time when the property of this company had not been taken over or consolidated with that of the Knoxville Water Company, and I therefore dropped the entire account for that year for this reason and for the somewhat abnormal situation shown.

Q. Well what was there abnormal about the year 1899-1900?

A. The operation of two water companies with two organizations and two sets of expenses, and other complications.

2964 Q. It appears in your testimony in the record that the consolidation of the two water companies was effected the first of January, 1900. Now I will ask you whether or not the vouchers that you have examined showing payments on account of the expenses of the Lonsdale-Beaumont Water Company in the year prior to the 31st of March, 1900, appear to have been any of them paid to the first of January, the date of the actual consolidation?

A. These vouchers of the Lonsdale-Beaumont Water Company that I examined appear to have run back as far as May, 1899, and were paid in June and every month afterwards in the year 1899.

COMMISSIONER: Don't you regard the year ending March 31, 1901 (I simply want the effect of your general observation) as fair a year as any other in which to test or sound the income and operating expenses of this company?

A. Yes, sir, this is possibly so, but for a fair basis of consideration of income and operating expenses, it is perhaps better to take the two years together and an average from them as a more correct basis.

Q. Now, Mr. Nixon, do those voucher payments made on account of the Lonsdale-Beaumont Company during the year 1899-1900 indicate when the debts were accrued in that year or before, or do they merely indicate when the payment was made?

A. The most of them indicated when the debts occurred; there are some instances which show the payment, but the majority of the vouchers for wages and purchases of materials show the date.

Q. Now, Mr. Nixon, in regard to the question asked you by the Commissioner, I will ask you whether or not this abnormal condition growing out of the consolidation of the Lonsdale-Beaumont

2965 plant continued to some extent in the year 1900-1901, and if some of the expenses of that year were not on account of the separate operation of the Lonsdale-Beaumont plant and out of proportion to the increased income?

A. Yes, sir, of this there was some of this increased expense that ran over into the year 1900-1901, as for instance the additional fuel necessary for operating two pump stations, and some other expenses that were not abated until perhaps May, 1900.

Q. Well, now what about office rent, Mr. Nixon, at what date did that matter pass from operating expenses into construction account?

A. That date has escaped by memory without refreshing my recollection but I think it was the last of 1900 that office rent expired, but I would have to refer to my memorandum to get that date as I don't remember exactly.

Q. What was that amount per annum?

A. $600.00 per annum.

Q. After that date it was accounted for in construction, was it?

A. After that date there was no such expense as the company had acquired an office building and charged it to the cost of plant or construction.

Q. Mr. Nixon, you were asked about the sale of the bonds of this company on cross-examination and as to whether they could have been sold at par, or at a premium or less. Now I want to put to you this question: Suppose this water company at its organization and during the period of its construction, 1882 to 1884 had a paid-up capital stock of $200000.00 and a bond issue limited by its charter to $150000.00 which it was required to place in the plant by the terms of its contract with the city of Knoxville. Now I will ask you whether or not 6% bonds running thirty years of such a water company could have been sold at par or at a premium or less at all times since the construction of this Works?

2966 A. Under such conditions I think such an amount of First Mortgage 6% bonds could have been easily, at any time sold at par or at a premium. I know I would have been glad to have bought such bonds at par.

Q. Mr. Nixon, in the Stock plan which is embraced in a statement made Exhibit "A" to your deposition showing the earnings, operating expenses, surplus, betterments, renewal fund and dividends for the period from 1883 to 1891 of this company, I will ask you whether or not you have not included in that statement and provided for all the additions to the plant costing $41863.60 out of the earnings of the plant?

A. There are two Stock plans, one with $200000.00 Capital stock paid in. Under this plan I have used as receipts $200000.00 Capital stock and $209562.00 of receipts from operation making a total of $409562.00, and considered as expenses the cost of the original plant, the cost of additions and extensions $41863.60 the operating expenses for the period, the accumulating of a renewal fund of $22000.00, dividends paid on stock to the amount of $100000.00, which would have left a balance in the Treasury of $23256.40. I also made up another Stock plan based on the stock paid in to a sufficient extent to cover the cost of the original construction, and treated in the summary of that plan as receipts from capital stock $112271.97, from receipts of operation the same as before, $209562.00, making total receipts $321833.97, and treated as expenses the cost of the original plant, the additions thereto and extensions, the operating expenses, the accumulating of a renewal fund of $20000.00, dividends paid to the extent of $31436.00 during the last three years of the term and a balance or surplus on hand of $6092.40.

Q. I will ask you whether or not as a result of these state-
2967 ments, Mr. Nixon, during the first eight years of the operation of this plant, if its income was adequate to pay its operating expenses and provide a sufficient renewal fund and to pay 6% dividend on an amount of stock equal to the cost of the plant and its extensions, and leave a surplus?

A. As shown by these plans the one with $200000.00 of Capital Stock paid in permits the payment of a dividend of 6% for the first seven years and 8% for the eighth year of the term. Under the plan with $112271.97 of stock paid in, the accumulation of renewal fund could not have commenced until the fifth year of the term and the payments of dividends until the sixth year, when 6% could have been paid, and a greater per cent. for the seventh and eighth years. These statements were made up using the income or receipts and oprating expenses shown by the books of the company for the eight years under consideration.

Q. These statements show a balance in the treasury at the end of this time, do they?

A. Yes, sir, under the first plan a balance of $23256.40 at the end of the term, and under the second plan a balance of $6092.40 at the end of the term.

Q. Now, Mr. Nixon, going to another subject; I will ask you whether or not there has been any separation on the original books of this company or on any of the books of this company of construction done or operating expenses accruing on property inside and property outside of the city?

A. No, sir, I have encountered no distinction or separations as shown on the account books of the company.

Q. Mr. Nixon, taking this plant as it exists, I will ask you whether an estimation of the value of the property of the plant situated inside the city as compared with the value of that part of the plant situated outside the city affords any fair basis for the separation of either the operating expenses or the income of the plant inside and outside the city?

2968 A. I think I have answered in a previous answer to a question that I considered it did not, and that a fairer basis would be upon a percentage of the income as was done in the Chattanooga case.

Q. Well, now Mr. William Wheeler has stated that 17.61 per cent. of the value of this plant is situated outside the city and that 12.29 per cent. of the whole is not required or used for supplying water within the city limits and that 5.32 per cent., the balance is required for supplying water within the city limits. Now it appears that Mr. Elbert Wheeler has adopted this basis of 12.29 per cent. of the property situated outside the city and not used for supplying water within the city as he says as his basis of the division of the income of the plant. Now I want to ask you to look to the exhibit of Mr. Wheeler's deposition in which he undertakes to give a summary of the plant outside the corporate limits of the city of Knoxville as such limits existed March 31st, 1901, under which head he gives the particular parts of the plant situated outside the city required for supplying

water within the city, and the parts not so required, and arrives at the above result that 17.61 per cent. of the whole plant is outside the city and that 12.29% of the whole plant is situated outside the city and not required for supplying water within the city, and 5.32 per cent. of the whole plant situated outside the city and required for supplying water within the city, and state whether or not the following items which had entirely gone out of the plant upon the consolidation of the L-B plant with the Knoxville Water Company are embraced in, and made to swell that 12.29 per cent., towit: L-B Real Estate $3000.00, Improvements on real estate, $35700.00, Improvements, Buildings and Machinery $15420.00 and perhaps some other items of like character. I will ask you to state whether or not the above items appear in Mr. Wheeler's table of depreciation,
2969 and to have otherwise utterly disappeared from the plant as a water supplying plant, and aggregate alone the sum of $54,120.00 of the total amount of $87,426.31 that goes to make up this alleged 12.29 per cent., which Mr. Elbert Wheeler makes the basis for the separation of the income of this plant?

Mr. CALDWELL: We object to the question as nothing more or less than an argument, and I ask that it be stricken from the record. We object to it on the further ground that we cannot agree to the statement made as from the records.

COMMISSIONER: The record is full of arguments on both sides, and whether this be so characterized or not, I am convinced that its conclusion will only result in a great number of separate questions and a great consumption of time. I therefore overrule the exception without passing upon the merits of it.

Exception taken.

A. The summary of plant outside the corporate limits of Knoxville as of March 31, 1901 shown by Mr. William Wheeler, includes the three items indicated or enumerated in the question, which aggregate $54,120.00, and are used to make up the total of $87,426.31, the property of the plant outside the city constituting the 12.29 per cent. thereof shown, and are the same items enumerated in the list of property covered by depreciation as shown by Mr. William Wheeler in another part of his deposition.

Q. What is the total amount here including that $54120.00 that makes up this 12.29 per cent. Mr. Nixon, as shown by this statement of Mr. Wheeler's?

A. This statement shows as the total amount used or required in connection with the plant inside the city limits as $37855.99. The amount as stated of the plant not required used with the city
2970 plant of $87426.31, these two amounts making a total of $124282.30, which makes, he says the three per cents that are enumerated in your question, towit: 5.32%, 12.29% and 17.6%.

Q. Now Mr. Nixon take the total of those three items which had entirely disappeared from the plant and contained in Mr. Wheeler's table of completed depreciation from the aggregate there that is made the basis of the 12.29%, $87426.31 and state what the remainder is?

A. $33306.31.

Q. Well now what per cent. is this remainder of $33306.31 of the plant?

A. It is evidently less than 5% as this remainder is a smaller amount than the $37855.99 from which Mr. Wheeler appears to get his 5.32%.

Q. Now Mr. Nixon if the values of the property of this company inside and outside the city are to be taken as the basis for the division of income realized inside and outside the city, I will ask you whether it is fair to include in that other parts of the plant that were not used outside the city at the time for supplying water, but had been abandoned as completed depreciation?

Mr. CALDWELL: We object to the question as we cannot agree with the statement he makes as to the effect of Elbert Wheeler's deposition on this point.

COMMISSIONER: Let him answer.

Exception taken.

A. I should certainly say that property of this character that is totally outside the city and gone out of the plant should not be considered in making a basis for a fair division of income or expenses of operation of the water company.

Q. Mr. Nixon I will ask you to examine page 5 and page 8 of Mr. Elbert Wheeler's deposition where he treats of the division of
2971 operating expenses between the city proper and outside the city for the years 1900-1901, 1901-1902 and state whether or not he has pursued a percentage basis, or some other basis for the division of operating expenses between the city proper and outside the city?

A. On these pages he appears to have divided the amounts of expenses between inside the city and outside the city, which in response to a question in my direct examination, I think I found to produce a percentage of about 5% for outside the city and 95% inside.

Q. Now on page 5 of Mr. Elbert Wheeler's deposition above referred to under the sub-division of taxes, he gives as applicable to the entire plant $8182.02 and assigns of this amount to the city proper $8161.73, leaving $20.28 for properties outside the city. Now I hand you voucher of the Knoxville Water Company #1149 heretofore referred to by you showing that on March 5, 1901 the Water Company paid $20.28 on 10 acres of land taxes for the year 1900. Now I will ask you if you know or are sufficiently acquainted with the properties of this company to state what tract of land that is?

A. I excluded this amount from operating expenses for that year on the statement of General Wheeler in his deposition referring to the item as being taxes on property outside the city not used for water purposes, but as to the particular property covered, I cannot say. The voucher says 10 acres.

Q. Is there any 10 acre tract that is in actual use for water works purposes that you know of?

A. No I don't know of property in use for water works purposes

outside the city except the Lonsdale standpipe lot which is a very small tract.

Q. Now Mr. Nixon I see that Mr. Wheeler has an item of
2972 $5431.15 as fuel for the entire plant for the year 1900-1901. I will ask you whether or not there is embraced in the operating expenses of this company for this year fuel for operating the Lonsdale-Beaumont plant for a part of the year?

A. Yes sir there is charged up on the books of the water company in operating expenses for that year fuel for the pump station $4304.99, for the filter station $931.78 and for the Lonsdale-Beaumont Water Company $194.38 making a total of $5431.15 as the fuel item of operating expenses for that year.

Q. Does that indicate that they were operating a pump at that station for a part of that year at the L-B station?

A. Yes sir it indicates that $194.38 of fuel was charged to that station for some purpose.

Q. Now Mr. Nixon on page 5 above referred to for the year 1900-1901, Mr. Elbert Wheeler gives for the entire plant, expenses at pump station $3948.19, assigning to the city proper $3908.71 leaving for outside the city $39.48. Now I will ask you whether you consider that a fair division of the pump station between inside and outside the city?

A. In consideration of the other charges on the books I certainly should not consider this apportionment a proper division.

Q. On page 8 of his deposition under "Pump Station" he gives for the entire plant $4603.74, and for the city proper $4557.70 leaving $46.04 as pump station account outside the city. Do you think that a fair division of the pumping expense between the city proper and outside the city?

A. I do not.

Q. Now on page 5 under the sub-head "Filter Station" he gives the cost of the entire plant $2270.28 and assigns to the city proper $2247.58 leaving outside the city to bear $22.70. Do you think this a fair division of the expenses of Filter Station between the city proper and outside the city?

A. I do not.

2973 Q. Well on page 8 under the same head of Filter Station for the next year he gives as the expense of the entire plant $2561.01 and assigns obvious expense to the city proper $2535.85 leaving outside the city $25.61. Do you think this a fair apportionment of the expense of the filter station between the city proper and outside the city?

A. I do not.

The further taking of this deposition was adjourned until Tuesday, December 1st, 1903, at 1:30 p. m.

2974 DECEMBER 1ST, 1903.

The further taking of deposition of W. M. NIXON continued.

Recross-examination by Mr. CALDWELL:

Q. Mr. Nixon, when you referred on page 277 of your deposition to alleged payments of cash to Wheeler & Parks, which you say amounted to $56,346.57, is it your purpose to say that much cash was paid by the Knoxville Water Company to Wheeler & Parks during the years from 1893 to 1897 inclusive?

A. That seems to be what Mr. Elbert Wheeler states in his deposition on page "47" Volume "2," but in my explanation, I was using this amount to deduct from the construction for those years, so as to ascertain the amount of construction that had been paid for in common and preferred stock amounting to $685,000.00.

Q. My question is not what Mr. Elbert Wheeler says, but what do you say to the question whether or not that amount of cash was paid by the Water Company to Wheeler and Parks in the years from 1893 to 1897 inclusive?

A. I know nothing about it except what Mr. Elbert Wheeler states, and have never undertaken to state the account, or trace it out, except to make up the payments shown from Wheeler and Parks and William Wheeler's accounts in accordance with the statement I have given on page "800" and "801" which seems to show a slight discrepancy from the amount given by Mr. Elbert Wheeler, which discrepancy I have never endeavored to reconcile or account for.

Q. Now did you look to the books about these alleged cash payments to Wheeler and Parks?

A. In which instance?

Q. In any instance?

A. In the first instance, I did not, simply taking Mr. Elbert Wheeler's amounts as he detailed them in this connection. In the second instance, as shown on pages "800" and "801" I took
2975 the amounts from the books, consolidating them however instead of detailing a long string of items.

Q. I wish you would look to the book and see if it is not a fact that these cash payments, as well as the other amounts shown on your table on pages 800 and 801 are simply a summary of the accounts of Wheeler and Parks and of William Wheeler as shown on pages 300 and 301 of the Treasurer's accounts, being #1 of Elbert Wheeler's books, and state if it is not a fact that your tables include all the items on those two pages?

A. Yes sir, that is true, as these statements were made up by a consolidation from the accounts shown on pages 300 and 301.

Q. What period do those pages of the ledger cover?

A. They seem to run from 1892 until January 18th 1900.

Q. Now look on the credit side and see if the first item there is not dated December 31st 1891?

A. Yes sir, the first item on the credit side is a balance from the old ledger, dated December 31st 1891.

Q. On page 804 of your deposition, referring to the cost of the reservoir you mention balance sheets. Do you refer to one of the pencil memoranda, or "balance sheets" as you call them, which were found loose in the ledger?

A. Yes sir the one that is set out in my deposition on page —.

Q. You make the cost of the reservoir $9850.00 or $9860.00. That is not the book cost of the reservoir, is it?

A. Yes sir this balance sheet purports to be made up from the books at the date that it was made up.

Q. What I ask you is if it is the cost shown on the books; not what the balance sheet purports to be?

A. Well you would have to give me the date of the cost shown on the books, as the book cost of the reservoir appears to progress and show different amount at different times.

2976 Q. What was the date of that balance sheet?

A. It has no date except the date that was reached on cross examination by analogy as of July 1st, 1883, some 60 days after the date that water was first turned on.

Q. This is not your replacement cost?

A. No sir our replacement cost is over $10,000.00.

Q. I know what it is, but I just wanted to know whether *the* was it or not; neither is it the cost you have given on your first page of Exhibit "A," is it?

A. No sir it is not the cost shown on Exhibit "A," which is an approximate sub-division of a total original cost of $112,271.97.

Q. On page 804 you state that "naked pipe" with Mr. Wheeler's 20% added costs $42.00 a ton. What do you mean by that statement?

A. I mean that $35.00 plus 20% is $42.00.

Q. You mean that the actual physical cost of buying that pipe was $42.00 a ton according to Mr. Wheeler's estimate?

A. No sir, I meant to quote Mr. Wheeler's estimate, which he stated was based on pipe at $35.00 a ton and adding 20% thereto would make $42.00 per ton.

Q. You understand however that this 20% is applied to all other parts of the plant, and has no special connection with pipe, don't you?

A. This 20% addition seems to have been added to all estimates throughout the plant except real estate and perhaps two or three other instances.

Q. On pages 814, 815 you say in effect, as I understand you that as the company has covered by expenditures either operating expenses or construction cost all replacements and renewals of the plant, there is nothing left to be covered by a depreciation fund. Assuming, without admitting that such is the fact, so far as culminated depreciation is concerned, isn't it necessary to have such a fund for future or incomplete depreciation?

2977 A. This would depend upon how the plant was handled. If the physical condition of the plant was maintained fully up to the requirements, and extensions and additions all paid for from construction account or operating expenses, it would not be necessary

to provide a renewal fund, the uses of such fund having been dispensed with.

Q. Are there any circumstances under which the company would not be authorized to make the necessary expenditures to keep the plant in repair?

A. I suppose such circumstances could be imagined.

Q. I wish you would imagine one of them then?

A. Well such circumstances as would be produced by the company adopting a policy of leaving such part of the additions, repairs and construction to be covered by such a fund instead of doing the work and paying for it out of the other two accounts.

Q. Then when it don't actually, as a matter of current expenditure, pay for such renewals and repairs, it is entitled to reserve a fund or profit otherwise for such repairs and renewals is it?

A. Yes sir that is the theory advanced in this record.

Q. Well do you approve or disapprove that theory?

A. Well that would depend upon the method that was pursued, as in one way I would approve it, and in another way I could not see its necessity.

Q. Do you undertake to say that it is not correct that the company is not entitled either to pay all renewals and repairs and all costs of maintenance out of current funds or to have a renewal or sinking fund accumulate for that purpose?

A. I should think that either plan would be correct, but not both plans at the same time.

Q. One plan or the other is necessary, isn't it?

A. I should think so.

2978 Q. What do you understand by "renewals"; that is to say in what condition, compared with its original condition as a new plant, is the company entitled to keep its property by these expenditures or by this sinking fund?

A. I should say that it would be entitled to maintain its property substantially as good as new, and at as high a state of efficiency as the demands upon it would justify.

Q. Referring to your statements upon re-examination as to the matter of painting, you mention on page 814 certain items, one of them being $400.00. That $400.00 was expended in 1903, wasn't it?

A. It was expended after 1901, or even after March 31, 1902 but I don't recall the exact date or year that it occurred, but it was disclosed in this investigation that it was a later date than was covered by my investigations.

Q. You state that contractors allow $100.00 to cover this part of the cost of erecting standpipes. Do you mean to say that that is a price fixed by all contractors regardless of the size of pipe and regardless of the number of coats of paint required by the specifications?

A. No, I applied that to contractors' estimates of the cost of erecting a duplicate of the standpipe at the filter station, using its dimensions and weights, and in this estimate showing the cost of each element the painting was placed at $100.00.

Q. The painting of what?

A. This standpipe at the filter station.

Q. How about the Lonsdale standpipe?

A. My recollection is that this item of cost in that pipe was placed at $80.00, as it is a much smaller pipe, less diameter and less height, and proportionately less surface to paint.

Q. What is the difference in surfaces between these two
2979 pipes to be painted?

A. This would call for some calculation that would take some little time which I could give you if you care to wait for it.

Q. Do you think the area is in proportion of 80 to 100?

A. No sir I should think not as the area of the inside and outsides of cylinders don't proportion that way exactly.

Q. On pages 815 and 816 you were asked to file a corrected statement of income and operating expenses for the years 1900-1901 and 1901-1902; in your original calculation you filed statements of this kind, also for the year 1899-1900. Did the fact that the year 1899-1900 is a more favorable one for the water company have any influence in inducing you to omit it from this calculation?

A. No I didn't consider that fact. The fact that it was complicated with the operations of another separate company was my reason why I thought it more accurate and comparatively fair to eliminate both sides of the account for that year.

Q. You put it in your first comparison, didn't you?

A. It was in the first comparison as I investigated the three years and half of the fourth year.

Q. You knew then that the year 1899-1900 contained these complications of the accounts of the two companies, didn't you?

A. Yes sir I referred to it and explained it in direct examination and on cross examination, and it has been up and discussed on both sides of the question.

Q. You also stated in your cross examination that you could straighten out and adjust accounts and say what allowances and charges should be made in connection with the Lonsdale-Beaumont receipts and expenditures, didn't you?

A. I think I stated that with proper data, information and explanation that I thought it possible to make the separations
2980 and segregations that would reach separate results, but I did not undertake this, but took a shorter method by dropping that year out.

Q. You were asked to undertake it, wer'n't you?

A. I don't remember and don't remember that I undertook to do it.

Q. And you did come back to the office of the Knoxville Water Company and devoted part of one morning to it, didn't you?

A. No sir I simply went through the vouchers that morning to ascertain their date, or as near as possible the months and time they covered, and not to undertake to restate the account or make the separations, as that entailed a greater job than I proposed to undertake at that stage of the proceedings.

Q. Isn't it a fact that in answer to your assertion that you could

make this separation and segregation, as you call it, I tendered you the books and vouchers of the water company for that purpose?

A. Yes sir but I never agreed to do it.

Q. Please see if on page 642 you were not tendered the books and vouchers for this purpose, and if on page 643 you were not asked "Mr. Nixon, have you examined the vouchers and books as to the state of the Lonsdale-Beaumont account from May 1899 to January the 1st, 1900, as requested in our last sitting on the 4th of November." "A. Yes sir, I looked through the Lonsdale vouchers that were furnished me and find that they cover items of expenses and material from May 1899 to March 31, 1900," and see if on pages 642 and 643 you were not tendered the books and vouchers for this purpose?

A. Yes sir, but I never agreed to do it, and never had sufficient data to have done so, as the vouchers tendered would not
2981 have been sufficient, but much other investigation and explanation would have been necessary. All I attempted to do was to ascertain from the vouchers the time covered, and how far they ran back behind the date of the consolidation of the properties.

Q. Did you refuse to make that investigation?

A. No I didn't refuse, but I didn't accept the job.

Q. Do you say now that you could or could not have made it?

A. I repeat what I said before.

Q. Well I am not asking you what you said before?

A. I think I could make it if provided with the information and explanation necessary, but I did not understand that I was investigating any books than those of the Knoxville Water Company, not going into other companies.

Q. Did you understand me as asking you to make that investigation?

A. No I didn't so understand it. I only understood that I would make sufficient investigations to disclose the mixture or commingling of the accounts of the two companies.

Q. Hadn't you discovered that long before that time?

A. Yes sir I had stated in both direct examination and cross examination that these accounts were mixed and as I thought improperly.

Q. Then why did you wish to discover it any further if you already knew it?

A. I desired to discover to what extent or to how far back the mixture had commenced.

Q. And you still deny that you came to the office of the Knoxville Water Company on the morning of the 17th of November 1903, in pursuance of my request that you make this investigation, and that you came here for the purpose of making that investigation?

A. Not at all; I have nothing to deny, as I came to the
2982 office of the Knoxville Water Company on the date in question and made the investigation, that I came to make, and satisfy myself as to how far the expenditures ran back, which was all that I understood that I had undertaken to do.

Q. Now please show me where you undertook to do that in this record?

A. On page 643 I state "I looked through the Lonsdale vouchers that were furnished me and find that they cover items of expenses and material from May 1899 to March 31, 1900."

Q. That refers to an answer of yours after you had made your investigations on the 17th of November. I want you to show me where you undertook to investigate those vouchers for the purpose of which you now say you investigated them?

A. Well I say the same thing now that I did on November 16th, 1903.

Q. For the year 1900-1901 you state the net water income at $88690.18 while the Treasurer on page 4 of his deposition states that the "actual collections" for the entire plant during this period were $88481.39 or a difference of $208.79. As this $208.79 is the difference between the uncollected accounts at the end of the year and those at the beginning of the year, am I correct in assuming that you have included the difference of these uncollected accounts while the Treasurer has excluded it?

A. I used the Treasurer's balance of water account of $93207.08 which he carried to profit and loss account; as the matter has been handled in the books, while it appears that the Treasurer in his statement was endeavoring to show the actual water collections for the year and not the income from water for that year.

Q. Now as that does not answer the question, I will ask the stenographer to read it to you again so that you may add the

2983 answer?

(Question repeated by stenographer.)

A. Yes sir my amount is the earnings for that year and includes both the cash collections from water and the accounts for same not collected, while as I understand it, the Treasurer was endeavoring to show the amount of cash collected from water for that year.

Q. For the year 1901-1902 you state net water income at $96517.25 while the Treasurer on page 8 of his deposition states as the actual water collections $95452.12 a difference of $1065.13; this also is the difference in the uncollected accounts at the beginning and end of the year, and I assume that you have included this difference, while the Treasurer has excluded it as was the case in the former year?

A. Yes sir I have shown the entire earnings from water for that year and the Treasurer's statement shows the amount of cash collected thereon.

Q. In the year 1900-1901 you state operating expenses at $30827.52 while the Treasurer on page 5 of his deposition and the Treasurer's account on Journal page 252 show these operating expenses to be $35775.89 or a difference of $4948.37. Please state in detail the several items which you have excluded from the operating expense account going to make up this total deduction of $4948.37?

A. The amounts eliminated are fully explained on my direct

examination on pages 94, 95, and 96 and consist of Insurance $201.67, Consolidation Taxes $965.00, Taxes on property outside the City $20.28, Fuel for Lonsdale-Beaumont Water Company $194.38, Repairs improperly charged $142.94, Pump Station, increase of Supplies on hand $251.04, Salary items deducted amounting to $1664.12, items improperly charged to Expense Account $582.40, Painting Standpipe $829.53, Rent of Spring in the country $90.00, Electric Survey $6.96, total $4948.37. The reason
2984 for disallowance of all of these items has been previously discussed in this investigation, and my explanations given fully for each item.

Q. Can you state these, item by item, and give me the voucher numbers?

A. The voucher numbers referred to in the amount eliminated from Insurance account is covered by two-thirds of voucher #256, $33.33, voucher #385 $25.00, voucher #994, two-thirds of $125.00 or $83.34, voucher #1091, $30.00, voucher #1092, $30.00, total $201.67.

From taxes, voucher #607, $965.00, voucher #1149, $20.28, total $985.28.

Fuel account L.-B. Company April 1st, 1900 on hand $63.08, April 21, 1900, $47.54, May 5, 1900, $46.31, May 15, 1900, $37.45, total $194.38.

Repairs account voucher #45, $48.20, voucher #472, $5.00 voucher #584, $64.74, vouchers #441, 442 and 443, $25.00, total $142.94.

Pump Station increase in stock of Supplies on hand $251.04 (no voucher).

Salary account, part of F. C. Kimball's salary, (no voucher) $500.00, one-half of William Wheeler's salary, voucher #2346, $229.63, voucher — $326.50, voucher — $234.97, voucher — $240.19, total $931.29, one-half of same $465.64.

Salary of E. Wheeler (no voucher) $344.46, $339.76, $352.46, $360.28, total $1396.96, one-half of same $698.48, total deduction from Salary account $1664.12.

Expense account voucher #137 $25.00, voucher #151 $5.00, voucher #216 $2.00, voucher #217, $3.25, voucher #331 $75.00, voucher #473, $50.00, voucher #374, $8.00, voucher #572, $5.00, voucher #644, $25.00, voucher #760, $25.00, voucher #853, $15.00, voucher #979, $5.00, voucher — Carnival $25.00, voucher — Cates $300.00, voucher #829, $.97, voucher — E. Wheeler, $13.23, total deduction from Expense account $582.45. Also
2985 painting standpipe (no voucher) $829.53; Spring rent voucher — $90.00, electric survey, voucher — $6.96, total eliminations from operating expenses for the year 1900-1901, $4948.37.

Q. For the year 1901-1902 you make a reduction in operating expenses from the amount claimed by the water company of $6724.01. Please state the items entering into this reduction, giving the voucher number and the amount covered by each voucher as you have done for the preceding year?

A. I cannot agree with you on the amount of deductions, as the items enumerated in operating expenses for this year aggregate $37084.52 instead of $37003.25. My eliminations amount to $6805.27 as follows:

Insurance, voucher 1539, $25.00, voucher 1792, $12.50, voucher 2045, $30.00, voucher 2102, $30.00, total $97.50.

Taxes voucher — $3655.87. On property outside the City $20.28.

Pump Station, increase in supplies on hand, $961.09.

Filter Station increase of supplies on hand $196.65.

Salary one-half of F. C. Kimball's salary (no voucher) $1000.00. One-half of William Wheeler's salary, voucher 1500, $246.03; voucher 1791, $255.42, voucher 2101, $245.17, voucher 2290, $281.86, total $1028.48, one-half of same $514.24.

One-half of E. Wheeler's salary (no voucher) $369.05, $750.88, $385.29, total $1505.22; one-half of same $752.61. Total deductions from salary account $2266.85.

Repairs account, voucher 1365, $25.00, voucher 1495, $138.50, voucher 1445, $98.00, voucher 1789, $70.00, voucher 2015, $14.14, voucher 2087, $422.00, total $767.64.

Expense account, voucher 1368, $10.00, voucher 1376, $62.50, voucher 1451, $148.30, voucher 1627, $42.50, voucher 1694, 2986 $4.63, voucher 1713, $125.00, voucher 1730, $25.85, voucher 1886 $3.00, voucher 1897, $4.63, voucher 2002, $14.50, voucher 2101, $218.27, voucher 2102, $269.45, voucher 1224, $61.50 of $91.50, voucher — H. M. Pason and Company, $4.94, total $1083.32. Also L-B Company, Repair items $255.60, water rates litigation, sundry vouchers $1156.34, total eliminations from operating expenses for this year $6805.27.

Q. Mr. Nixon, upon what do you base your statement that the expenses in the year 1900-1901 in connection with the Lonsdale-Beaumont plant were out of proportion to the increased income of the water company?

A. I stated that some of the increase of expenses brought about by consolidation of the Lonsdale-Beaumont water company with that of the Knoxville Water Company continued over into the year 1900-1901 until abated about May 1900, which was some two months or over into 1900-1901.

Q. But why do you say that the expenses were out of proportion to the increased income?

A. I didn't say that; that is in the question. I didn't have that in my answer.

Q. Then you don't think that the expenses were out of proportion to the increased income?

A. I didn't make comparison as to the proportions, but only answered that there was some increase in the year in question on this account.

Q. Well what do you think about it now?

A. I couldn't say unless I cast up the figures and make the comparisons and separations, which I have never done.

Q. The assumption that the expenses were out of proportion to

the increased income was not in my question but the question propounded by counsel for City?

A. Yes sir, and to which I did not reply, my answer
2987 being only directed to the increase of expenses.

Q. It is a fact, is it not, that you have never examined the income received from the former Lonsdale-Beaumont plant in the fiscal year 1900-1901?

A. No sir I have never dissected it and made an examination for this purpose. I made some separation for the purpose of making a comparison of the per centage of reduction in the rates as contemplated by the city's ordinance, but found the domestic or fixture rates were not involved.

Q. You are of opinion on page 820 that office rent continued until the last of 1900. Please look to page 98-N of the Journal and see if it didn't stop February 1st, 1900?

A. Yes sir the last rent charged appears to have been for January 1900.

Q. In the various Stock and Bond plans which you have recently put in your deposition, is it not a fact that in determining under each of these plans the results for the various years from the commencement to December 31, 1891, you have invariably included the operating expenses as shown by the Loweree and Martine books, and have included as construction accounts, independent investigations and amounts of your own, based upon these books, and that you have left out of consideration or "in the air" as you have termed it, a sum in excess of $68000.00 shown by these books to have been expended in construction or operation, or both, but which has no place in any of your plans and methods of financing the operations of this company to December 31, 1891, and I ask you further if the exclusion of this amount was not necessary in order to show the results that you obtained, and if the inclusion of this amount of $60000.00 odd thousand would not have shown in all of these plans of yours a deficit on the 31st of December 1891 regardless of whether this $60000.00 odd thousand had been assigned to
2988 operation or to construction, or portions of it to both?

A. In these Stock and Bond plans I used the income and operating expenses as shown by the books with some additions to the expenses as heretofore explained. I do not locate the $60000.00 odd thousand item that you refer to, but of course if an amount of this magnitude had been taken into consideration it would have produced a different result, just as if the $115000.00 charged to interest had been brought in. In the ascertaining the cost of the original construction and additions thereto, there was some conformity to the books and information elicited otherwise, and obtained from other sources as well as comparisons, &c., but no attempt made to produce a construction account by copying the charges in the books, complicated as they were, and I did not do so.

Q. One particular point to which I directed your attention was whether or not the inclusion of the $60000.00 odd thousand would have made a deficiency?

A. I expect the assumption of an amount of that magnitude at the proper time would have produced a deficiency, or at least would have reduced the dividends and renewal accumulations shown.

Q. The use of the words "renewal fund" and "dividends" in this connection is entirely your own and is not taken from the books, is it?

A. No, they were taken from the statements on Exhibit "A" which shows dividends and renewal fund accumulated and interest paid.

Q. Whose Exhibit "A"?

A. Exhibit "A" to my deposition about which your questions appear to relate.

Q. Well what I meant was that they are your own terms and are not found on the books of the company?

2989 A. Oh the terms are used on the books of the company, but the amount shown on this Exhibit are not identical or comparable to those upon the books of the company except perhaps the renewal fund named, which is called on the books "depreciation."

Q. On page 822 you state there is no distinction or separation shown on the account books of the company of the amount of construction done or operating expenses accruing on property inside and outside the city. For my present purpose, assuming this statement to be correct, I will ask you whether or not the plans of the company don't show the corporation lines as existing, and also all construction outside the city and whether it would not have been possible for an investigation to have disclosed from these maps and plans what was outside as well as inside the city?

A. Yes sir the maps and plans have various lines of city limits as they existed at various dates indicated thereon. These plans also purport to show the size and footage of pipe lines without these limits. I suppose with sufficient time and investigation that the lines of the city limits existing March 31, 1901 could have been located, the measurements of the pipe lines outside attained approximately and a separate statement made up, as appears to have been attempted as shown on the Exhibit to Mr. William Wheeler's deposition, but I did not untertake to make up a construction account, and as to income and operating expenses, there is no division or line of demarcation indicated on the account books, and this segregation could not have been secured except at the expense of much time and investigation.

Q. I did not ask you about the income outside and inside the city, and call your attention to the fact that so far as I know

2990 you have volunteered that part of your answer?

A. Well it is instructive.

Q. And you think also it is unfavorable to the water company, do you not?

A. No sir I don't know what effect it has on the water company.

Q. Isn't it a fact that these same plans show by number each individual service outside the corporation limits and that only in point of time required would there be any difficulty in taking off these

service numbers from the plans and by operating them with the register and collection reports determine the exact amount at any given point collected from the plant outside the city limits?

A. No doubt this task could have been accomplished with approximate accuracy if sufficient time and investigation could have been available.

Q. You were asked in your re-examination to assume in two different places in the long question on pages 823-824 that Mr. Elbert Wheeler has adopted the basis of 12.29% of the property situated outside the city and not used for supplying water within the city as his basis of the division of the income of the plant. I will ask you to point out where in Elbert Wheeler's deposition, or in any other deposition of the complainant's witnesses the per cent. of which the estimated value of the property outside or inside the city is used to divide the income as between these two portions of the plant?

A. On page 2, Volume "2" Mr. Elbert Wheeler shows the city proper collections $88481.39 less $10333.08 for the year 1900-1901, and this deductcion is as near as I can figure 12.29% of the total collections, after deducting the city hydrant account, and on page 8, Volume "2" General Wheeler shows the city proper collections for the year 1901-1902 at $95452.12 less $14435.36 which is also
2991 as near as you can figure 12.29% of the entire collections after allowing the city hydrant account.

Q. That is to say General Wheeler gives certain figures and you figure it out that that amounts approximately to certain percentages?

A. Yes sir and that they accord with the percentages of division of the property inside and outside the city made in other parts of the record.

Q. Now turn to page 53, Elbert Wheeler's deposition and see if the following is not an answer to a question as to how he obtains the relative amounts of revenue derived from that part of the plant outside the city and that part of it inside the city: "Ans. By adding up the actual income received from services during that fiscal year outside the city limits, and subtracting it from the total receipts, we determined the actual receipts within the city limits" and does not that show actual and not estimated results of income both inside and outside the city were obtained?

A. Yes sir he gives such an answer, but preceding it for several pages he discusses the percentages of the property inside and outside the city, and the expenses as well as the tables of income to which I have heretofore referred.

Q. How did you arrive at the conclusion that the city ordinance reducing water rates would make an average reduction of 18% upon the rates of the company?

A. In making a comparison of the schedule of rates proposed by the city's ordinance with the schedule used by the water company I found that the rates proposed by the city made approximately 20% reduction upon the company's rates on fixtures, on meter rates above 10 cents, 25%; on rates of 10 cents and under 28%; that the
2992 rates on some meters in West Knoxville are less by the company's rates then the rates proposed by the city, and on other

meters 29% less than the company's rates; that the company's rates on fixtures in West Knoxville are less than the city's rates; that the company allows discounts and abatements and that the city's ordinance does not, and by taking the total receipts of water from all sources for the year 1901 and deducting therefrom the rebates and city hydrant account and deducting therefrom the receipts of West Knoxville for fixtures and for meters not reduced by city rates would produce the following summary: Receipts from fixtures $46372.53, for meters $24955.90, hydrants $11455.00 to which add reduction by city rates on fixtures $9287.40, on meters $4761.12 and $3681.90 and $177.23 makes a total reduction of $17907.65 or 17.78%, from which I reached my conclusion that the schedule of rates proposed by the city's ordinance would reduce the earnings or income from water of the water company approximately 18%.

Q. You didn't go over each service metered and unmetered and apply both the ordinance rate and water company's rate to each of them, did you?

A. No sir I separated the receipts from fixtures and the receipts from meters and made a separation of the meters carrying different rates, and another separation of the income from West Knoxville which is operated under a different schedule of rates, and also separated the West Knoxville meters affected by the schedule proposed by the city's ordinance, and using these various amounts calculated the same and reached the conclusion set out in the foregoing answer.

Q. If we assume that Mr. Kimball took each one of the services, metered and unmetered, aggregating 4315 services and ap-
2993 plied the city ordinance rate and the water company's rate to each one of them individually, and by the results thus obtained worked out the percentage of decrease affected by the ordinance, would not his method be both more thorough and more accurate than yours?

A. I don't think that the difference between my method and his would have been as much as one per cent. and perhaps less than one-half of one per cent.

Q. I am not asking you what you think the difference would have been, but if you don't think his method would have been more thorough and more accurate than yours?

A. It would have been more thorough but not necessarily more accurate, as there is some elements of approximation or estimation in both methods as there is per cents., discounts, rebates, &c. to be considered. Mr. Kimball claims to have taken every service for a quarter, while I took different classes of services for the entire year and computed them and thus reached my conclusions.

W. M. NIXON.

Adjourned until Monday, December 14th, 1903, at 1:30 P. M.

2994 EXHIBIT "A" TO NIXON'S DEPOSITION.

Statement of Original Construction and Operation, 1883 *to* 1891.

The Books show the cost of Original Construction by Mr. Loweree as follows:

Pump Station	$28,032.60
Street mains and pipe system	46,932.57
Force main	6,555.18
Reservoir	10,106.51
Service material	3,269.66
General construction	6,051.20
Engineering	1,856.50
Contractors	1,667.75
Real Estate and plans	7,800.00
	$112,271.97

Against Balance accounts of—

G. W. Ballou & Co	$76,328.33
George P. Sheldon	32,416.49
Sundry other ac's	3,527.15
	$112,271.97

There is some evidence that only about $110,000.00 of above went into the plant.

Operations Began on This Construction.

During the 8 years' operation, additions and extensions were made costing, as shown by the books, as follows:

Betterments, machinery, &c.	$3946.67
Street mains and extensions	28888.31
Reservoir repairs	5058.32
Meters purchased	1884.50
Merchandise on hand 12/31/91	234.33
Construction	709.07
2995 Pump Station	1142.40
	$41863.60

This includes some operating expenses. The correct cost is probably not in excess of $40,000.00.

Receipts or earnings during the 8 years' operations were from—

Cash collections	$164,816.62
City Hydrants, &c.	43,036.22
Notes and accounts and corrections	1,723.90
Making	$209,562.00

The Operating Expenses for same term, including legal expenses, &c.	$110,170.00
The surplus being	$99,392.00
The total of Interest account charged during this time is	$115,349.50

for interest on bonds, coupons, preferred stock and discounts on same, and interest on loans from banks.

2996 *Stock Plan.*

$200,000.00 Capital Stock Paid in.

With the Capital Stock paid in Cash in compliance with the law, and taking the Receipts and Operating Expenses shown by the books, the following result is easily attained.

Year		1884.	1885.	1886.
Stock paid in	$200,000.00			
Cost of Plant	112,272.00			
	bal.	$87,728.	$72,157	$55,791
Receipts from Operation		13,729.	14,034	17,092
Total		$101,457.	$86,191	$72,883
Expenses Operation		10,000.	11,000	12,000
Balance		$91,457.	$75,191	$60,883
Additional Extensions		5,000.00	5,000	5,000
Balance		$86,457	$70,191	$55,883
Renewal Fund 2%		2,300	2,400	2,500
Balance		$84,157	$67,791	$53,383
Dividend on stock 6%		12,000	12,000	12,000
Balance Treasury		$72,157	$55,791	$41,383

Receipts.		*Expenses.*	
From Capital stock..	$200,000	Cost of original plant..	$112,272.
Receipts Operation..	209,562	" " Addn's and Ext'n's	41,863.60
		Operating Expenses...	110,170.00
		Renewal fund accumulated	22,000.00
		Dividend paid on St'k..	100,000.00
		Balance in Treasury...	23,256.40
	$409,562.00		$409,562.00

Result.

Capital stock paid in—Earnings pay operating expenses from the first, additions and extensions all paid for amounting to $41,863.60.

Renewal fund of $22,000.00 accumulated; Interest on balances would increase this fund to $30,000.00.

Dividend of 6% paid regularly from the first amounting to $100,000.00.

Actual cost of Original plant and additions, earning and Operating expenses from the books used in the above.

2997

1887.	1888.	1889.	1890.	1891.
$41,383	$29,770	$20,248	$17,382	$20,925
20,987	24,178	31,934	40,443	47,165
$62,370	$53,948	$52,182	$57,825	$68,090
$13,000	$14,000	$15,000	$17,000	$18,170
$49,370	$39,948	$37,185	$40,825	$49,920
5,000	5,000	5,000	5,000	6,863.60
$44,370	$34,948	$32,182	$35,825	$43,056.40
$2,600	$2,700	$2,800	$2,900	$3,800.00
$41,770	$32,248	$39,382	$32,925	$39,256.40
12,000	12,000	12,000	12,000	16,000
$29,770	$20,248.00	$17,382.	$20,925	$23,256.40

2998

Stock Plan.

If paid in stock to cover cost of original construction amounting to $112,271.97 had been placed in the Treasury, the receipts would pay operating expenses from outset, pay for the additions and extensions amounting to $41863.60.

After five years begin to put aside a renewal fund, amounting by the end of the term to $20,000.00; on the 6th year the stockholders would have received a dividend of 6%, and on the 7th. year 10%, and 12% on the 8th year, with a balance of $6092.40 in the Treasury.

The following being the operation, pro-rating the cost of additions after payment of operating expenses:—

Operations, 1883–1884 *to* 1891.

Year.	Earnings.	Op. exp.	Surplus.	Betterments.	Renew.	Fund-div.
1883–'4.....	13,729	10,000	3,729	3,000	.....	.....
1885.....	14,034	11,000	3,034	3,000	.....	.....
1886.....	17,092	12,000	5,092	5,000	.....	.....
1887.....	20,987	13,000	7,987	6,000	.....	.....
1888.....	24,178	14,000	10,178	6,863.60	3,000	.....
1889.....	31,934	15,000	16,934	7,000	5,000	6,736.40
1890.....	40,443	17,000	23,443	6,000	7,000	11,227
1891.....	47,165	18,170	28,995	5,000	5,000	13,472.60
	209,562	110,170	99,392	41,863.60	20,000	31,436.00
Balance.....						6,092.40

Summary.

Receipts.		*Expenses.*	
From Capital stock....	$112,271.97	Cost of orig. plant....	$112,271.97
" Receipts Oper....	209,562.00	" additions.....	41,863.60
		Operating expenses..	110,170.00
		Renewal Fund accu.	20,000.00
		Dividends paid.....	31,436.00
		Balance on hand.....	6,092.40
	$321,833.97		$321,833.97

2999 *Bond Plan.*

Following the plan of financing and operating that was adopted to wit, issuing $125,000.00 bonds to cover cost of original construction, and later issuing $25,000.00 more bonds to reinforce the Treasury of the Company the following should have been the result:

Operation, 1883 *to* 1892.

Year.	Receipts.	Op. epx.	An. sur.	Ad. bonds.	Int. p'd on bonds.	Flt. dt.	Adds.	Ren'l fund.
1883–'4.	13,729	10,000	3,729	.....	.....	7,500	3,000	
1885....	14,034	11,000	3,034	.....	.....	15,450	3,000	
1886....	17,092	12,000	5,092	.....	.....	23,877	5,000	
1887....	20,987	13,000	7,987	.....	.....	32,810	6,000	
1888....	24,178	14,000	10,178	23,750	30,000	12,278	6,000	
1889....	31,934	15,000	16,934	.....	10,000	12,016	7,000	
1890....	40,443	17,000	23,443	.....	18,000	3,736	5,000	10,000
1891....	47,165	18,170	28,995	.....	12,961	.....	6,183.60	
	$209,562	110,170	$99,392	$23,750	$70,961	.....	$41,863.60	
Balance.....							$317.40	

Result of the Above.

Receipts.		*Expenses.*	
From bonds	$112,271.97	Cost of plant	$112,271.97
"	23,750.00	Cost of additions	41,863.60
Op'r Receipts	209,562.00	Operating Expenses	110,170.00
		Int. on Bonds	64,500.00
		Int. on flt. debt	6,461.00
		Renewal fund	10,000.00
		Bal. on hand	317.40
	$345,583.97		$345,583.97

3000

Conclusion.

Receipts.		*Expenses.*	
Bonds	$125,000	Cost of plant	$110,000
	25,000	" additions	40,000
Debentures	85,000	Opr. Expenses	110,170
		Interest a/c	115,329
	$235,000		375,499
Earnings	209,562	Balance on hand if not absorbed by promoters or financiers	69,063
	$444,562		$444,562

3001

OCTOBER 12TH, 1903—9 o'clock a. m.

Court met pursuant to adjournment.
Adjourned until 2 o'clock P. M. of same date.

MONDAY, *Oct.* 12*th*—2 o'clock p. m.

Court met pursuant to adjournment.

CHARLES S. BROWN, next witness called on behalf of defendant, being first duly sworn, testifies as follows:

Examination by Mr. PICKLE:

Q. Professor Brown, give your age, residence and occupation or profession?

A. My age is 43 years; my residence Nashville, Tennessee; profession Mechanical Engineer, and am engaged particularly in teaching that subject at the Vanderbilt University, Nashville Tennessee; I am also engaged in consulting practice in mechanical, electrical and civil engineering lines.

Q. Please give, in a general way, the extent of your education and practice as an engineer?

A. My engineering education began previous to entering college, in the machine shops, where I learned the trade of machinist. I then entered Yale University in the Sheffield Scientific School, and graduated from that institution in 1883, after taking a course in mechanical engineering, with special work in mining engineering, with

the idea of qualifying as a mining engineer. I then began work in my profession as a mechanical mining engineer, or mill engineer more particularly, and was engaged for three or four years in mining mill building, in which time I put up several very large plants in various parts of the country. I then went into cable railroad engineering in Kansas City, and during that time designed, besides special appliances for cable railroad construction and details,
several large power plants for the several lines that were
3002 under construction at that time in Kansas City and St. Louis.
I then returned to mining engineering work for a short time, and was engaged in the management of a coal mining property in Indiana. I began teaching in 1888 at the Rose Polytechnic Institute at Terre Haute, Indiana, where I remained for eight years as professor of steam engineering and machine design, and in charge of the work shops. I meanwhile took up the practice of engineering in consulting lines. I came to Nashville in 1896 as professor of Mechanical Engineering at Vanderbilt University, and have continued consulting practice in the South, designing and supervising the construction of water works, sewerage, filtration plants, electric light and power stations and works of similar character, besides carrying on, or rather being in charge of the construction work for the University during that time. I was consulting engineer for the Board of Prison Commissioners during the incumbency of W. M. Nixon as Chairman, designing their water works and filtration system at the new penitentiary, making additions to their power plant, and acting in an advisory capacity in the matter of their electric haulage at the State Mines. I, within the past two or three years, have designed the Municipal Electric Light Plant for the City of Nashville, completed last year, and am at present engaged as consulting engineer for T. J. Mooney Company, contractors in Nashville in the construction of water works and sewerage at Chickamauga Park, Georgia, at the new Government Post.

Q. Professor do you consider yourself qualified and competent to testify as an expert as to the cost and value of a plant, such as that owned and operated in Knoxville by the Knoxville Water Company for supplying the City with water?

A. I think my experience would warrant me in saying that I am competent to undertake work of that character.

Q. Have you made an estimate of the cost of replacement as of the
31st of March 1901, of the plant and works of the Knoxville
3003 Water Company as existing at that date, the replacement to
consist of new plant, if not identically, substantially the same as that of the Knoxville Water Company at that date, having as regards usefulness, durability and efficiency, qualities equal to that plant if it had been at that date new?

A. I have done so.

Q. Will you please file that estimate and copy the same as a part of your answer to this question?

A. I will do so, and the same is as follows:

"Statement of the Property Comprising the Plant of the Knoxville Water Company on March 31st, 1901, and the Cost of Its Replacement with New Materials and Machinery on That Date.

River Station.

Engine and boiler house and engine pits, &c.:	
Earth excavation; cleaning off 422 cu. yds. 20c.....	$84.40
Old engine pit:	
400 cu. yds. 20c.....	80.00
Boiler house:	
64.4 cu. yds. 20c.....	12.88
Office and shop:	
171.4 cu. yds. 20c.....	34.28
New engine house—Extension to old:	
700 cu. yds.....	140.00
Coal chute:	
49.4 cu. yds. 20c.....	9.88
1807.2 cu. yds.....	$361.44
3004 Rock excavation:	
Facing up rear, 197 cu. yds. 60c..... $118.20	$118.20
Old Engine pit, 627 " " 1.10.....	689.70
New enpine pit, 250 " " .60.....	150.00
Screen well, 93 " " 1.50.....	139.50
Rear of boiler House, 244.4 cu. yds. 60c.....	146.64
Coal Chute and pocket, 64 cu. yds. 60c.....	38.40
Water Closet, 10 cu. yds. 60c.....	6.00
Tunnel between pits, 250 cu. yds. $1.00.....	250.00
Total.....	$1538.44
Concrete:	
1116.9 cu. yds.....	$3757.29

River Station.

Concrete floors, 471.2 sq. yds. $.75		352.40
Brick in cement:		
Old Engine pit: lining	35,700 $13.00.....	464.10
Retaining wall	65,000 13.00.....	845.00

New engine house:

Basement New Engine House	13,700	$14.00.....	191,80
New Engine pit lining	28,200	13.00.....	366.60
Screen well,	15,400	14.00.....	215.60
Tunnel and barrier wall	1,640	.....	35.00
Tunnel between pits	12,000	16.00.....	192.00
	171,640		$2310.10

Brick in lime:

Old Engine House (part retained)	59,400 at	$10. ...	594.00
New part engine house,	54,000 at	11.00...	594.00
3005 Boiler House and Coal House	38,000 at	10.00...	380.00
Tool House,	13,000 at	10.00...	130.00
	164,400		$1698.00

Lumber and wood floors:

Lumber	$639.60	
Wood floors	215.60	
		$855.20
Carpenter work		737.50
Hardware and nails		282.00
Oiling and painting		115.00
Slate roofing		634.00
Guttering and flashing		165.00
Doors, windows and frames		356.00
Window and door sills, engine and boiler house		161.50
Stairs and railing		525.00
Railing		217.80
Lavatory		150.00
Plumbing, heating and lighting		150.00
Felt roofing on tool house		15.00
Macadam and spreading		20.50
Sodding. 650 sq. yds	$39.00	
Seeding	7.50	
		46.50
Fencing, Craig Street lot		122.50
Fire protection		50.50
Drainage, Front St. stair-way		35.00
185′ 4″ C. I. Pipe		55.00
100 ft. 8 in. clay pipe		25.00
Catch basin, from Boiler House		8.00
Total Building		$14,744.67
15% Contractor's profit contingent expenses and engineering		2,211.70
		$16,956.37

3006 River Station.

Machinery, &c.:

Intake Tower: Earth excation, 404 cu. yds. 30c.	$121.20
Rock Excavation, 233 cu. yds. 1.50	349.50
Concrete, 450.8 cu. yds. $4.80	2163.84
Forms	452.00
Coffer Dam &c	263.00
Pumping	30.00
Cleaning, &c., painting gauge	25.00
Top "I" beams and floor	49.00
Gratings and screens	97.00
Ladder	20.00
Ejector and connections	175.61
Bridge	150.50
Gates	1382.00
24 inch influent gate	165.00
24 inch pipe	145.92
Riprapping and grading	100.00
Angle iron on nose	25.00
Total	$5,714.57
20% contractor's profit, contingent expense, and engineering	1,142.91
Total	6,857.48

24-inch intake:

Earth excavation 313 cubic yards at 30 cents	93.90
Rock excation 107 cubic yards, at $1.50	160.50
Cofferdam	209.50
Pumping	30.00
24 inch pipe connection	254.40
One 24 inch ⅛ bend	36.10
One 5 foot flange and bell connection	37.50
One 24 inch gate, stand and rods	150.00
3007 Total 24 inch Intake	$971.90
20% contractor's profit, contingent expense and engineering	194.38
	1166.28

Screen well equipment:

Screens, &c	$157.60
3 inch suction and discharge	30.00
84 feet of 6 inch pipe, &c	55.00
Pulsometer Pump	175.00
Total	$417.60
15% contractor's profits, contingent expenses and engineering	62.64
Total	$480.24

Machinery, &c.:

Pumping engines—Two triple expansion pumping engines similar to the present Worthing equipments, 4½ million gallons capacity each per 24 hours, f. o. b. Knoxville $9,000.00 each	$18,000.00
Foundations, cartage and erection	1,125.00
Total	$19,125.00
8% contractor's profits and engineering	1,530.00
Total	$20,655.00
Suction and discharge connections	1,710.22
15% contractor's profits, contingent expenses and engineering	256.53
Total	$1966.75
Total pumping engines and connections	22621.75

Boilers:

Two 66 — by 18 foot boilers with all fixtures and connections, including foundation and setting	3689.80
Two 54 — by 16 feet boilers with all fixtures and connections iucluding foundations and setting	2754.60
Induced draft equipment	1010.90
3008 Boiler feed pump, steam and water connections	209.00
Feed water heater, &c	172.60
Steam connections, boilers to engines	273.54
Vacuum Pump piping	50.00
Sump pump and connections	150.00
Total	$8310.44
12½% contractor's profits, contingent expense, and engineering	1038.80
Total	$9349.24

Summary, River Station.

Total machinery	$31970.99
Total buildings	16956.37
Total Intake tower	6857.48
Total 24 inch intake	1176.28
Total Screen well equipment	480.24
Grand total river station	$57441.36

Filter Station.

Filter house, pump house, boiler house, coal shed, and settling basins:

Earth excavation:

Filter House, 1118 cu. yds. at 15c	$167.70
Settling basin extension, 256 cu. tds. at 15c	38.40
Grading at station, 2,000 y'rds at 10c	200.00
Total	$406.10
Concrete, 424 7/10 yds	2426.40
Cement floors, 652 9/10 yds	682.87
Brick in cement, 28,500	408.00
Brick in lime, 81,300	813.00
Vitrified brick, 70,700 at $16.50	1166.55
Lumber and wood floors	861.70
Carpenter work	995.00
3009 Hardware, nails and iron	255.00
Painting and oiling	335.00
Flashing and guttering	250.00
Slate roofing	855.00
Doors, windows and frames	290.50
Window and door sills, and marble slab	123.30
Stairs and steps	87,00
Heating and lighting	100.00
Fire protection	200.00
Drainage and settling basin connections	530.12
Sodding and seeding	97.50
Macadam walks and drives	60.00
Fencing	312.90
Total building, &c	$11255.94
15% contractor's profits, contingent expense, and engineering	1688.39
Total	$12944.33

Lonsdale standpipe:

105,000 pounds of plates, &c., erected at $3.44	$3615.00
Foundations, &c	235.60
Total	$3850.60
15% contractor's profits, contingent expenses and engineering	577.59
Total	$4428.19

Storage reservoirs:

Earth excavation, 10,000 yds. at 15c	$1500.00
Concrete bottom and sides, 5110 sq. yds. 8 inches thick making 1136 cu. yds	5509.60
Plastering top of same, 5110 sq. yds. 1 inch thick	2044.00
800 feet of wire fence	105.00
3010 Total storage reservoirs	$9158.60
15% contractor's profits, contingent expenses and engineering	1373.79
Total	$10532.39

Stack:

Earth excavation 16 cu. yds. at 20c	$3.20
Concrete 16 cu. yds. at $3/25	52.00
44,500 brick in lime at $15.00	657.50
11,500 vitrified brick at $21.00	241.50
Cement cap	3.00
Lightening rod and erection	25.00
Clean out door and frame	5.00
Total	$997.20
15% contractor's profits, contingent expenses and engineering	149.58
Total	$1146.78

Standpipe:

210,000 plates erected at $3.30	$6930.00
Foundations, &c	404.75
Total	$7334.75
15% contractor's profits, contingent expenses and engineering	1121.00
Total	$8434.96

Filters:

18– 10 foot 6 inch gravity filters at $900.00 each	$16200.00
8% contractor's profits, contingent expense and engineering	1296.00
Total	$17496.00

Pumping engines:

3011

One compound duplex pumping engine, 2,000,000 gallons capacity	$3600.00
Foundations and water connections	459.65
Total	$4059.60
10% contractor's profit, contingent expenses and engineering	405.96
Total	$4465.61

Boilers:

Two 50 h. p. Boilers erected complete with all connections	$1566.48
12½% contractor's profits, contingent expenses and engineering	195.81
Total	$1762.29

Summary of Filter Station Equipment.

Storage reservoirs	$10,532.39
Stack	1,146.78
Standpipe	8,434.96
Filters	17,496.00
Pumping engine	4,465.61
Boilers	1,762.29
Lonsdale Standpipe	4,428.19
Filter house	12,944.33
Total Filter Station	$61,210.55

3012 *Cast Iron Pipe and Appurtenances Existing March 31st, 1901, William Wheeler's Weights.*

Size.	Feet.	Weight.	Pounds.
20	2723.3	165 m	449332
18	714.9	140	100086
16	9031.2	116	1047619.2
14	7607.8	95	722741
12	34383.2	75	2578740.
10	23680.4	58	1373463.2
8	37214.8	43	1600236.4
6	104820.9	30	3144627.
4	46109.	20	922180.0
3	20864.	15	312960.0
	287149.2		12251984.8

Total 6126 tons at $18.50	$113331.00
Specials 2% of weight 122.52 tons at $40.00	4900.80
Total	$118231.80
8% Contractor's profit and engineering	9458.54
Total	$127690.34

Cost of Laying Cast Iron Pipe Existing March 31st, 1901, Covering Labor, Trench, Lead, Yarn, Hauling, etc.

Size.	Feet.	Rate.	Amount.
20	2723.3	45	$1225.48
18	714.9	36	257.36
16	9031.2	28	2528.73
14	7607.8	22	1673.72
12	34383.2	18	6188.97
10	23680.4	15	3552.06
3013			
8	37214.8	12	4465.77
6	104820.9	10	10482.09
4	46109.0	9	4149.81
3	20864.0	8	1669.12
	287149.2		$36193.11
Restoring streets, 1 cent per foot			$2871.49
Rock excavation, 1/5 cent per foot			574.30
			$39638.90
20% contractor's profits, contingent expenses and engineering			7927.78
			$47566.68

Cost of Wrought Iron Pipe Existing March 31, 1901.

Size.	Feet.	Cost laid.	Amount.
3.5	250.8	.4725	$118.50
3	489.7	.385	188.54
2.5	416.2	.3025	125.69
2	33923.	.205	6954.21
1.5	5668.3	.1625	921.20
1.25	5557.3	.142	789.14
1	18181.9	.114	2072.74
.75	9036.3	.092	831.34
.5	1517.3	.078	118.35
	75010.8		$12119.71

15% contractor's profits, contingent expenses, and engineering	1817.96
	$13937.67
3014 Pipe Bridge, Clinch Avenue:	
9033.4 pounds of steel at 4¼ cents	$393.90
15% contractor's profits, contingent expense and engineering	59.08
	$452.98
Fire hydrants:	
85 1 nozzle hydrants, at $21.65	$1840.25
139 2 nozzle hydrants, at $22.77	3165.03
23 3 nozzle hydrants, at $24.00	552.00
	$5557.28
10% contractor's profits, contingent expense and engineering	555.73
	$6113.01
Meters:	
276 meters, assorted sizes	$4434.00
10% contractor's profits, contingent expenses and engineering	443.40
	$4877.40
Meter boxes:	
276 meter boxes at $6.00 set	$1656.00
10% contractor's profits, contingent expense and engineering	165.60
	$1821.60
Service connections:	
427 service connections at $5.00 each	$2135.00
20% contractor's profits, contingent expenses and engineering	427.00
	$2562.00
Gates and valves:	
Gates	$6373.00
Valves	205.18
3 checks	190.72
3 automatic air valves	72.00
3015 Gates and valves, total	6840.90
10% contractor's profit, contingent expenses and engineering	684.09
	$7524.99

Gate and valve boxes:

496 boxes at $2.25 each	$1116.00
167 boxes at $ .70	116.90
	$1232.90
10% contractor's profits, contingent expenses and engineering	123.29
	$1356.19

Summary, Pipe System and Appurtenances.

287,149.2 feet of cast iron pipe and specials	$127690.34
Cost of laying, restoring streets, and rock excavation	47566.68
Wrought iron pipe laid	13937.67
Pipe Bridge	452.98
Fire hydrants	6113.01
Gates and valves	7524.99
Gate, &c. valve boxes	1356.19
Meters	4877.40
Meter boxes	1821.60
Service connections	2562.00
	$213902.86

3016 *Total Value of Plant, Including Labor, Machinery, Materials, Contractor's Profits, Contingent Expense, and Engineering.*

River Station	$57441.36
Filter Station	61210.55
Pipe System and appurtenances	213902.86
	$332554.77
Real Estate	25000.00
Tools, teams office furniture, fixtures and supplies	6150.00
Interest on capital during construction, 6% on $100,000.00 for one year	6000.00
Expenses of organization, promotion &c	10000.00
	$379704.77

3017 Q. Will you please state fully the methods pursued by you in making this estimate of replacement, and especially what examination you may have made of the plans in the office of the Knoxville Water Company, and what examinations you may have made of the plant or the parts of the plant or properties of the Water Company, and generally the method pursued by you in making up this estimate?

A. I was furnished the plans on file at the office of the Water Company which are purported to be the plans for the plant as at pres-

ent existing. I took off the quantities of materials, machinery, &c., from such plans, and made also several visits to the pumping station, and filter station, and as far as possible verified many of the quantities which were not perhaps fully shown upon the plans. I also sought as much information as possible from those people who were familiar with the construction of the plant. I obtained prices from dealers and contractors on machinery and apparatus, and materials, and from my own knowledge of the cost of materials and machinery, compiled the estimate which I have handed you.

Q. Professor, I will ask you how long you have been engaged in the work of investigating the cost of this plant?

A. I came here first, at your request, on the 27th day of August, and have been here at frequent intervals since that date.

Q. I will ask you whether or not you have gone over it as carefully as you would if you were estimating the cost of a plant for contracting building?

Objected to by counsel for the plaintiff, as the answer should be confined simply to what he has done and not to a statement of opinion of that kind.

COMMISSIONER: Let him answer.

A. I have gone into the matter of the investigation of the value of this plant at very great detail, in much greater detail prob-
3018 ably than I would in making in an estimate on a new plant, and have been very careful to obtain, as far as possible, accurate quantities and prices.

Q. What efforts, if any, have you made to familiarize yourself with local prices and the situation here?

A. I have consulted with a number of people who are familiar with local conditions, prices, &c., and have carefully looked over the ground myself so as to, as far as possible, make my estimate cover local conditions.

Q. Professor, without asking you to go into the entire details of your methods, I will ask you to state as an illustration of your methods how you ascertained say, the cost of laying pipe, and how you estimated the cost of brick entering into the plant. I simply ask about these items as mere illustrations to show how you proceeded in the matter?

A. In order to get at, as near as possible, the actual cost of performing the various parts of the work of construction, I went into a careful analysis of the cost of different units, such as the cost of laying pipe of different sizes per foot; the cost of brick work per cubic —, or per thousand; the cost of concrete construction per cubic yard, and the various other items of similar character which went to make up the cost of the plant. Each of these items consists of elements, some of which are constant quantities, the values of which are fixed and are easily determined with exactness. There are other quantities entering into their construction which are variable and can only be determined by the experience of individuals in conducting work of a similar character. For instance, the cost of laying cast iron pipe is made up of the following items, the values of which are easily deter-

mined for any given case: There is first, the cost of the pipe
3019 and the cost of its delivery on the work; there is the cost of the materials entering into the making up of the joints, consisting of lead, yarn, &c. There is then the cost of trenching, which for given local conditions is easily determined with fair exactness; there is then the cost of labor in laying the pipe which also can be determined with fair exactness, due to the fact that it is well known among contractors and engineers approximately, how much a given gang of men will lay per day of any given size pipe. From these data the exact cost, or a close approximation to it can be obtained of the cost of the pipe line. I have also analyzed the cost of brick work in the same manner. The cost of the brick is easily determined; the amount of mortar, sand and materials used in construction is well known; the number of brick which, under given conditions can be laid by a brickmason per day, is well known. Therefore the cost of laying brick per thousand can be determined with very reasonable exactness.

Q. Do I understand you to say that you went into this detail in estimating brick and laying of pipe and ascertaining the cost of other portions of this plant?

A. Yes, sir, where the circumstances seemed to warrant it; that is the quantities of material were large and the exact value desirable to determine, I went into the matter of the cost in very great detail.

Q. What method of measurement of brick did you adopt in ascertaining the number of brick in the various buildings constituting this plant?

A. What is known as "kiln count" or the actual brick.

Q. Well, will you explain a little more fully how that count is conducted or made?

A. Kiln count is the actual count of the brick as they come from the kiln, and represent the actual number of brick which have been loaded or delivered.

3020 Q. Well, now how do you ascertain that when the brick are in the walls?

A. It is a very easy matter, when the size of the brick are known and the thickness of the joint is known to determine by calculation just how many brick have gone into a wall of any given dimensions.

Q. Do you take the cubic contents of the wall?

A. The cubic contents, yes, sir.

Q. Then you did not pursue what is sometimes known as the "architect's method" of ascertaining the number of brick?

A. No, sir.

Q. I will ask you to state whether or not the paper which I have heretofore asked you to make a part of your deposition represents in your opinion, the fair cost of the replacement of the Knoxville Water Company's plant on the 31st of March, 1901?

A. It does.

Q. Whom, if anyone, assisted you in making up that estimate, Mr. Brown?

A. Mr. W. M. Nixon, of Chattanooga, worked with me on this estimate.

Q. What was the fair value of the replaced plant, the cost of which you have estimated as new on the 31st of March, 1901?

A. $379,704.77.

Q. I will ask you to state whether or not that estimate of the value of the plant is based upon the assumption that it is favorably situated with reference to population, &c., for the supply of water?

A. I estimated the value of that plant upon its present location and construction, departing only in minor details.

Q. Now, Professor, you have spoken of departures in minor details from the original plant of the Water Company. I will ask
3021 you to state in what particulars, if any, you departed from the plan of the original plant, and to state whether or not such departures operated to increase or diminish the value of the plant, and what the departures were?

A. The only departures of consequence, were in the proposed use of concrete to a very considerable extent in the foundations of the various buildings; for machinery, and an estimate on a pair of horizontal duplex, triple expansion engines, rather than upon one of such, and a vertical engine such as exists at present in the plant. I think that covers the departures. The departures did not, in any sense, decrease the value of the plant.

Q. Professor what per cents. have you allowed, and for what purposes were they allowed in this estimate of the cost and value of this plant?

A. I estimated different percentages of profit on the machinery, buildings, &c. These percentages were made up of contractors' profit and contingent expenses, and costs of engineering services. For engineering services I estimated that a plant of this magnitude would probably cost three per cent. on the total cost of the plant. The contractor's profit and contingent expenses vary from five (5%) per cent., to seventeen (17%) per cent., depending upon the character of the work and the uncertainties which the contractor would be compelled to consider in the construction of the various parts. In contracting for work of this character, a contractor would hardly expect to make as large a percentage upon cast iron pipe or pumping machinery laid down here as he would upon the laying of pipe and the opening of trenches, in which there is a large amount of uncertainty. In ordinary practice, we find a contract of this sort divided up into sub-contracts; that is, bids are asked upon various parts of the work, and while they may all be let to one contractor, very fre-
3022 quently they are let to several. Separate bids would probably be asked on buildings, pumping engines, cast iron pipe, and specials, hydrants, valves, and valve boxes. On cast iron pipe the manufacturer will usually protect the contractor to the extent of 5%; that is, they will give him a price which may be 5% lower than that which they would give to the company or municipality asking bids. Therefore, the contractor is not likely to make in excess of 5% on his pipe, and I have estimated that amount for his profits upon the pipe and specials.

Pumping machinery and machinery of such character, in which

there is little risk on the part of the contractor, go in at approximately the same profit. Same with regard to fire hydrants.

On the construction of buildings I have made an estimate of an average of 12% profit, or profit and contingent expenses, and on the pipe laying, as high as 17%. I have stated that this item covers contractors' profit and contingent expenses. By this I mean that no contractor and no engineer in making an estimate on a plant of this character, can pick up every item of cost which would actually be made in the construction. A contractor may, after figuring or estimating his work as carefully as possible, or perhaps I might say as is customary, adds possibly 10% or 15% or 20%, depending upon the contingencies which he anticipates he may meet in the work. That does not mean that he will make all of that in profit. In general, if a contractor makes from 5% to 7% or 8% on a work of large magnitude, he is doing exceptionally well. That is the balance which he has figured on is covered by contingencies which he was not able to detail when he made his estimates. If a contractor with $100,000.00 capital and doing $500,000.00 of work in a year makes a net 5% on his contracts, he is doing a good business. So the profit and contingent expense upon this work represents a possible
3023 profit to the contractor of 5% to 8%, and the balance contingent expenses. I also have here expenses of organization, promotion, &c., $10,000.00.

Q. Is this last item included in the $379,704.77?

A. Yes sir.

Q. Professor, in going over this plant, have you discovered any facts or points that materially affect its value outside of the matters you have already mentioned, and if so will you please state what they are, and in what way they affect its value?

A. I have noticed particularly the matter of the large amount of wrought iron pipe, of small sizes, which goes to make up the distribution system. It would seem to me that that would be a matter of very serious importance. Wrought iron pipe is not as durable as cast iron pipe and is undesirable on that account. The sizes used are too small for fire protection and for efficient distribution of water—that is the principal objection.

Q. Well Professor what about the location of the intake tower?

Objected to by counsel for plaintiff on the ground that it appears from the contract which is a part of this record that the intake tower was located where it is by a contract with the City, and on demand of the city.

COMMISSIONER: Let him answer the question.

A. Considering the fact that there is a stream discharging into the river, a distance not very far above the location of the intake tower, it would appear to me that there would be a likelihood of the demand and necessity for the moving of the intake, or the re-location of the entire pumping station at a point where pure water can be obtained, which in a short time would be so strong as would substantially cause the abandonment of the present plant, or the expense of locating an intake in such a manner as to obtain water not contaminated by

streams above, which run through thickly inhabited districts.

3024 Q. Professor would it have been practicable to have located the intake tower, and to obtain a water supply, leaving the present pumping station at a point above the river—above this stream?

Objected to by counsel for plaintiff as irrelevant.

COMMISSIONER: Let him answer.

A. I hav-n't investigated that matter sufficiently to know whether it would have been commercially practicable to obtain water from above this drain and use the present pumping station or not.

Q. I notice Professor that in your estimate of cost of replacement of this plant, that you have made certain allowances for engineering. I will ask you if this allowance is made and based upon the assumption that the Water Company itself furnished the plans for this plant at its own cost?

A. No sir it is made without reference to the Water Company furnishing its own plans. It is made with reference to a replacement of a plant, or the construction of a plant of similar character and extent with plans furnished by some engineer.

Q. Or in other words Professor, I will ask you if this allowance includes the plans and specifications for the erection of the Water works?

A. Yes sir.

Q. Now I will ask you if you would modify this per cent. which you have allowed for engineering, if in point of fact the water plant was built at Knoxville under a contract between the city and the Water Company, and the plans and specifications for that plant furnished and paid for by the city?

A. I should say that in such case allowance should be made for the plans and specifications furnished by the city.

Q. Would that increase or decrease the per cent. you have allowed for engineering?

3025 A. That would decrease the per cent.

Q. Professor, what effect would the fact, if it be shown in the record, have upon this allowance that only about one-third of this plant was built originally and the remainder was put in by additions and extensions from time to time, and the engineering paid as an operating expense of the company. Should this engineering for the additions and extensions be allowed both in construction account and in the operating expense account?

Mr. CALDWELL: We except to statement of facts in question which we do not consider to be facts.

Over-ruled.

Exception taken.

A. It would seem to be improper for it to be charged to both accounts.

Q. I notice in the estimate that you have made of the replacement of this plant, that you have made certain allowances for contractor's profits, risks and contingencies. I will ask you whether this estimate

is made upon the assumption that the work was done by contractors and not by the company directly?

A. It is made on the basis that the work was done by contractors.

Q. Now assuming that the original construction or additions and extensions, or that a material part of them were made and done by the company directly, without the intervention of contractors, under the supervision of the officers of the company and employés of the company, who were paid by the company as for operating expenses, would this allowance for contractor's profits and risks be proper in such case in the construction account?

Mr. CALDWELL: We except to the statement of facts made in the question, which we do not consider to be facts.

Over-ruled.

Exception taken.

3026 A. It would hardly seem to me that such a charge would be proper under such conditions.

Q. Then I will ask you Professor whether if the allowances for contractors' profits and risks are allowed the company for construction done by the company through its salaried officers and employés, state whether or not that profit should enter into the income of the company?

A. In my opinion it should.

Q. Professor have you made up a statement showing the difference in value between the replaced plant—entirely new—on the 31st of March 1901, and the plant of the Knoxville Water Company as it actually existed at that date?

A. Such statement is in process but has not yet been completed.

Q. Will you please file such statement and make the same a part of your answer to this question?

A. I will do so, and it is as follows:

Comparative Value of Old and New Plants as of March 31st, 1901.

	Value as of M'ch 31, 1901.	Comparative value of old plant.
River station:		
Engine and boiler house, tool and storage house, coal house and chute, stairs and grading	$16,956.37	$10,000.
Pumping engines, boilers and connections..	31,970.99	21,420.00
Intake Equipment	8,514.00	7,200.00
Filter station:		
Reservoir	10,532.39	5,500.00
Building &c. stack	14,091.11	11,250.00
Pumping engines and connections	4,465.61	3,000.00
Boilers and connections	1,762.29	800.00

3027 (Filter Station, cont'd.)

Stand-pipes:		
Filter Station	$8434,96	$6300.00
Lonsdale	4428.19	3300.00
Filters	17496.00	12000.00
Distribution system:		
Cast Iron Pipe, hydrants, valves	190704.19	122850.00
Wrought iron pipe	13937.67	2800.00
Service connections	2562.00	2400.00
Meters and boxes	6699.00	5000.00
Miscellaneous:		
Real Estate	25000.00	25000.00
Office fixtures, tools, teams, supplies, &c...	6150.00	6150.00
	$363704.77	$244970.00
Interest on capital during Construction...	6000.00	
Organization Expenses	10000.00	
	$379704.77	

3028 Q. Prof., I will ask you how is Knoxville situated with reference to its advantages or disadvantages for the furnishing of water to its inhabitants, and the cost of the same?

A. In my judgment the city of Knoxville is very advantageously situated for obtaining a cheap water supply. It has the Tennessee river within easy reach; it has cheap coal; it has also cheap labor. It has no expensive impounding reservoirs to build. It does not have to acquire the streams for miles around so that it would seem that the opportunities for furnishing a cheap and good water supply to the City of Knoxville are exceptional.

The further taking of depositions was adjourned until nine o'clock, October 13, 1903.

OCTOBER 13, 1903 (TUESDAY)—Nine o'clock a. m.

Continuation of direct examination of CHAS. S. BROWN.

Examination by Mr. PICKLE:

Q. Professor I want to ask you this morning whether you are a member of the American Society of Engineers, and how long you have been such?

A. I am a member of the American Society of Mechanical Engineers and have been a member since 1889 or 1890, I have forgotten the exact date.

Q. Before studying engineering, did you work as a mechanic and learn practically the trade of a mechanic?

A. Yes sir, I began work in the machine shops at a very early age, probably 14 years of age, and had learned the machinist trade

before I entered College, had a very considerable experience both before and after my University course, both as a journeyman machinist and in charge of work shops.

Q. Are you and have you been in the employ, or in touch with parties who afforded you facilities of getting prices on ma-
3029 chinery and other things entering into the construction of plants of this sort?

A. I have been consulting engineer of the T. J. Mooney Company of Nashville, who are general contractors, and my relations with them are such that I can obtain prices on machinery and apparatus, which are bottom prices.

Q. Professor, in the statement or estimate of cost of a new plant erected as of the 31st of March 1901, I omitted to ask you about an item of $6,000.00 for interest on money during the construction period, or rather on money that is supposed to have been idle during the period of construction. What was that item intended to cover?

A. That item was inserted to cover the possible interest on idle money during the period of construction and was set at 6% on $100,000.00 for one year, amounting to $6,000.00.

Q. Now as to additions to a plant made from time to time to meet the demands of the water supply, should any such allowance be made, and if not, why not?

A. I should be inclined to think that under such circumstances it would be unnecessary to allow any considerable amount and in fact possibly nothing, as doubtless with any company undertaking work of construction of that sort, the demands for funds to meet payments would not be considerable until the machinery had been installed. I think it is usual that such funds shall not be provided until the payment for the apparatus is necessary, and that it would be unusual for any considerable amount of funds to be kept on hands to mee- such emergencies for any considerable time previous to the requirement for payment.

Q. Professor, will you please explain somewhat in detail how you arrived at and made up this table of comparative values of old and new plants as of March 31, 1901 which you have heretofore copied into your deposition?

3030 A. In making up this tabulation I compared values between the new plant constructed as of date March 31, 1901, and for the old plant, the several itmes making up the cost of this plant, were taken, the average age determined, as nearly as possible, and the probable life of the different items estimated, as far as possible all conditions were anticipated which go to determine how long the life of each part would be.

Q. Did you examine the estimate of the cost of this plant made by Mr. William Wheeler and embodied in his deposition in this case?

A. I examined parts of it.

Q. Well from which source did you derive the age of the portions of the plant that you estimated this depreciation on?

A. The ages were determined from the deposition of Mr. William Wheeler as to the time when such parts were installed.

Q. Then you adopted as the age, his statement?
A. His statements were adopted as to the age.
Q. Now as to the per cent. of depreciation and the life of the different portions of the plant, did you in the main agree with or depart from Mr. Wheeler's statement and estimate?
A. I compared a number of his statements regarding the percentage of depreciation as of date March the 31st 1901, but his total depreciation, or the total depreciation which he placed upon each item was different from mine because of the fact that his values were very considerably higher. The percentage of depreciation in some items, as I recollect, agree- fairly closely with those of his.
Q. How about the ages of the different parts of the plant; did you agree with Mr. Wheeler in that respect, or not mainly?
A. Well I think with a fair degree of closeness.
Q. You speak of Mr. Wheeler's estimates being higher than yours. I will ask you what is your opinion as regards the estimates of
3031 Mr. Wheeler in his statement as to whether higher or lower?
A. The cost placed upon a great majority of the different items going to make up the total plant by Mr. Wheeler, were very much in excess of what I would call cost prices.

Mr. CALDWELL: I doubt the admissibility of that kind of an answer because it is so absolutely general.

3032 MONDAY, *December 14th*, 1903—1:30 p. m.

The further taking of this deposition was adjourned until Tuesday, December 15th, at 9:30 o'clock a. m.

Cross-examination of CHARLES S. BROWN by J. W. CALDWELL:

Q. Mr. Brown what do you understand to be the purpose for which you are being examined in this case?
A. I don't know that I quite understand your question, Mr. Caldwell?
Q. I mean what is the fact or result to be established by your testimony?
A. I don't know that I understand that question Mr. Caldwell.

Mr. PICKLE: I object to that as the testimony is before him to show what he is to be examined for.

Q. Do I make myself any clearer if I ask to what general conclusion the several facts and opinions embraced in your testimony are intended to lead?
A. As I understand it, the purpose of my testimony was to establish the fair replacement value of the plant of the Knoxville Water Company of date March 31, 1901.
Q. When you came to Knoxville to testify you met Mr. William Nixon and were informed of the fact that he had been engaged for several months in working upon the books of the Knoxville Water Company and in examining its physical properties, were you not?
A. Yes sir.

Q. You did not personally make any examination of the books of the Knoxville Water Company, did you?

A. No sir no examination of the books was made by me.

Q. In so far then as any results reached by you were de-
3033 pendent upon the books of the company, this joint replacement estimate made by you and Mr. Nixon may be ascribed entirely to Mr. Nixon, may it not?

A. Such parts of the estimate as were dependent upon the books of the company, by which I understand the records of accounts kept, depended upon data and investigations obtained by Mr. Nixon.

Q. And you did not make personal examination of these records, or attempt in any way to verify Mr. Nixon's results, but accepted those results upon your faith in Mr. Nixon's accuracy?

A. I do not remember at the present time, where the estimate made by us or by me depended upon any data obtained from the record of accounts of the company.

Q. But if there were any such points, your answer to the last question would be in the affirmative, would it not?

A. As far as I know at the present time.

Q. The examinations of the plans for the building and other constructions of the Knoxville Water Company, and the calculations based upon those plans, were made exclusively by you, were tney not?

A. Not exclusively, no sir. The examination of the plans was largely made by me.

Q. What part did Mr. Nixon have in ascertaining the results that were reached by an examination of those plans?

A. Mr. Nixon examined the plans himself previous to my coming, and on my arrival went over the plans with me explaining the points which he was familiar with. Mr. Nixon assisted me in the calculations of nearly all the quantities, and assisted me in determining many of the prices or costs.

Q. Mr. Nixon stated to you, did he not, that he was not able to take the plans and work out from them unaided the quantities involved in the various constructions?

3034 A. I don't remember that he ever made any such statement, Mr. Caldwell.

Q. Do you not in some way know from him or otherwise that the fact was as implied in my last question?

A. I of course understand that there are many of the quantities that would necessarily have to be determined by one having special technical training, and such work Mr. Nixon left me.

Q. Were not you brought here as a witness for the express reason that it was necessary to have technical work of that kind done which could not be done by any other of the City's witnesses?

A. I had correspondence with General Pickle, and an interview with Mayor McTeer long before I knew of Mr. Nixon or anybody else being connected with the matter. I presume I was brought here to determine the technical points which perhaps the other witnesses had not determined.

Q. Is it not also a fact that the other witnesses could not determine those technical points?

A. I am not familiar with the qualifications of the various witnesses which have appeared for the city in this case. I have no doubt that nearly, if not quite all the points which have been determined by me might have been determined by other witnesses of the city.

Q. Could you name any witness of the city whom you think capable of doing what you describe as "technical work?"

A. I do not have in mind at the present time who the witnesses for the city have been. Doubtless there are a number of them, that I am entirely unacquainted with, and whose names I do not remember. I have no doubt that a vast majority of questions in this case might have been obtained, or determined with accuracy by other witnesses of the city.

3035 Q. Confining our attention to the replacement estimate made by you and Mr. Nixon, it is a fact, is it not, that all the work upon it of the kind which you describe as "technical" is exclusively your work?

A. I think that depends largely upon the meaning of the word "technical" Mr. Caldwell.

Q. Well as you have furnished the word I think very properly in this record, I will repeat the last question asked you to answer it according to your understanding of the meaning of the word "technical?"

A. The work of obtaining the replacement value of the plant of the Knoxville Water Company, was simply a matter of determination of quantities of material and their values. It was not necessarily an engineering question. Most men who have had business experience, especially in the technical trades, would have been able to have determined a large portion perhaps the greater portion of these questions without difficulty.

Q. If it be conceded that a greater portion of these determinations could have been made by a person who is not an engineer, I understand you to mean that there remained a smaller portion which could not have been made except by an engineer?

A. In my opinion this question is not an engineering question at all. The quantities involving the question of cost might have been determined by one having no special training as an engineer.

COMMISSIONER: Can you name any part of the works that required the services of a technical engineer?

A. I do not know Mr. Ewing, or I do not recall at this moment any points that required the services of an engineer, any points that a good sharp business man would not have been able to deter-

3036 mine possibly by the assistance of men who had had especial experience in each branch.

Q. Then you come now to the conclusion, not that a greater part of this work could have been done by an unprofessional man but that the whole of it might have been done by such a man?

A. As I said I don't recall at the present time anything which

might not have been determined by one not having an engineering training.

Q. That being so, you would not regard yourself as any better qualified than Mr. Nixon to make this replacement estimate?

A. I am inclined to feel that on many questions I would be better qualified because of my technical training, and because of the fact that I would be less dependent upon the assistance of others in determining quantities, and possibly because I am more familiar with the prices of work of that character.

Q. You will admit that will you not, that a trained engineer is better qualified for this kind of work than one that is not trained as an engineer?

A. I would feel that a trained engineer would accomplish the work with better facility—that his conclusions would probably be somewhat closer than those of an untrained man.

Q. Without regard to the question whether or not Mr. Nixon was qualified to do the kind of work upon this replacement estimate which you have described as technical, it is a fact, is it not, that he did not do that technical work?

A. It is a fact that he left the determination of many questions which could be more readily determined by me on account of my technical training, to me.

3037 Q. Do you not know it to be a fact that there was much work of the kind last referred to by you, which he left to you from necessity, because he could not do it himself?

A. Doubtless there were many points in the investigation of this matter which were left to me, due to the fact that I was better qualified to determine them, but there are probably no facts connected with the work which without my assistance Mr. Nixon might not have acquired from builders, contractors and men not necessarily having an engineering training who had had experience with similar work.

Q. When you began your work with Mr. Nixon, did he have the information necessary to do all this work?

A. He had information on a great many points, but not information sufficient to have completed the work.

Q. Can you specify in whole, or in part the points upon which he lacked information when you began your work together?

A. I think at that time, if I recollect correctly, that nothing had been done as to the determination of the cost of the power pump station equipment, or of some portions of the filter station, although Mr. Nixon had, at that time, a great deal of material collected as to the cost of individual parts of the plant.

COMMISSIONER: To get it down more definitely, could Mr. Nixon figure the number of tons of steel in a standpipe?

A. He had that already figured when I came here.

COMMISSIONER: He could do that could he?

A. Very readily, apparently.

Q. He got that information about the standpipes from the books of the company, didn't he?

3038 A. I didn't understand that he did. I remember that one of the first things he showed me, was a calculation of the standpipe which he had made himself.

COMMISSIONER: And you verified that and found it correct?

A. I made another calculation of the standpipe which very closely accorded with his. Mr. Nixon had collected a large amount of local information—information which I would have had to collect had I came here previous to his coming.

COMMISSIONER: What you might call a history of the plant?

A. Yes sir.

Q. The points in regard to the pump station and the filter plant were mainly connected with the architect's plans, were they not; I mean the points which Mr. Nixon had not determined?

A. Yes sir I think that most of those points were points that would have to be determined directly from the plans or the buildings themselves; although he had done much work on this in connection with Mr. Munding, I think his name is, and Mr. Getaz, who had looked over the plant.

Q. Didn't Mr. Nixon tell you that he couldn't comprehend those plans of the architect's?

A. No sir Mr. Nixon said nothing of the sort to me, nor did he give me the impression that he couldn't comprehend the plans.

Q. Did he tell you why he hadn't worked out the results from those plans?

A. At the time I came here, Mr. Nixon had a great mass of material collected, and it was not strange to me that he had not, at that time, collected all the data necessary for the determination of the question, and for which I came.

3039 Q. That is a very reasonable suggestion, but it is not responsive to my question. Did he tell you why he hadn't worked out the results from those plans?

A. I don't know that I asked him any such question, Mr. Caldwell.

Q. You knew then and you know now that he could not have worked them out, don't you?

A. I think in general Mr. Nixon, if he had attempted it, would have been able to have determined without much difficulty, and without much assistance most of the quantities on the plans. There were some points which doubtless he would have left to me, or to someone else more familiar with the reading of plans.

Q. You say that Mr. Nixon had gotten a large amount of local information at the time when you came here?

A. Yes sir.

Q. Did you accept that local information as correct, and make no personal examination of the matters covered by it?

A. I made an endeavor to determine on my own part the correctness of such information as Mr. Nixon had at that time collected, and to corroborate by my own determination, such data as he had collected, or to make such corrections, as by my own experience seemed proper.

Q. Can you remember any of the corrections you made?

A. Yes sir I made some corrections as to the value of brick work.

Q. Of what?

A. Of brick work, and possibly of concrete construction and work of that character, in which I felt that the conclusions arrived at by me were more nearly correct than those obtained by him.

Q. Did you make these corrections from knowledge already in your possession, or knowledge acquired after you came here?

3040 A. From both; from knowledge already in my possession and from knowledge acquired after I came here.

Q. From whom here in Knoxville did you get information as to brick work?

A. I had a conversation with one or two contractors or supply men whose names I have forgotten, as to the cost of some of the materials entering into brick work, such as lime and sand, and if my recollection is correct as to brick, although Mr. Nixon had determined both from local men what the cost of brick was and in fact the cost of these materials entering into brick work previous to my coming.

Q. Were the names of those persons that you conversed with Getaz and Munding?

A. I don't know that I met Getaz and Munding, although I am not certain.

Q. Did you increase or decrease Mr. Nixon's estimates or cost of brick work?

A. I very considerably increased, I think at that time, the estimates which Mr. Nixon had for brick work.

Q. He told you that he based his estimates upon the testimony of the witnesses, Getaz and Munding, didn't he?

A. In talking with him on this matter the testimony of Getaz and Munding was discussed, also the cost of various work of the sort in buildings about the City, also comparisons with the cost elsewhere. He did not confine himself in this discussion to Getaz and Munding's testimony.

Q. You understood however that you were rejecting the estimates of Getaz and Munding as to the cost of brick work when you made your corrections of Mr. Nixon's estimates, didn't you?

A. I didn't understand any such thing sir.

Q. How do you understand it now?

A. It is my impression that Getaz and Munding's esti-

3041 mates were made on somewhat a different plan—based on a different basis from what I worked on and which we afterwards adopted.

Q. Then you at least disapproved their basis?

A. I preferred in making my estimate to follow the plan which had been adopted by Mr. Kimball, in order to get ready comparison.

Q. Did you increase or decrease Mr. Nixon's estimates as to concrete?

A. I don't recollect what the net result was in that discussion.

Q. What was there, if you remember, in his estimate of concretes that you disapproved?

A. If I recollect correctly, some of the costs of the materials entering into the mixture were changed, and also the proportions.

Q. You increased the allowance for cost in each instance, didn't you?

A. I am not certain about the concrete sir.

Q. Did you have occasion, in regard to any item entering into the replacement estimate to decrease Mr. Nixon's estimates?

A. I don't now recall any particular instance of decrease of his costs.

Q. Can you recall any other instances in which you increased his allowances for costs of either work or material?

A. I don't recall any at this moment.

Q. Did you agree with him in the beginning of your relations as to the cost of cast iron pipe?

A. No sir.

Q. Were you higher or lower in your estimate than he was?

A. I was higher somewhat.

Q. What did he want to put it at, at first?

3042 A. I think about $17.00 a ton.

Q. And what did you think at first it ought to be put at?

A. Judging from the data which I had collected, $20.00.

Q. And you compromised on $18.50?

A. We compromised on $19.45.

Q. Is that your replacement estimate of the cost of it?

A. Yes sir.

Q. Does that include freight to Knoxville?

A. Freight to Knoxville, yes sir.

Q. Well did he want the $17.00 to cover cost of pipe and freight also?

A. I think that was the price which he stood out for.

Q. Your $20.00 price included the freight also, did it?

A. Yes sir.

Q. Did you agree with him as to the cost of setting the two pumping engines at the pump station?

A. Yes sir.

Q. You cannot recall any other items now upon which you disagreed?

A. I do not recall any items upon which we had any disagreement—that is in which he took any fixed stand and I took anything opposite.

Q. In your personal determination of the price to be allowed for cast iron pipe, did you rely upon a large purchase of pipe made at the city of Nashville in the Spring of 1901?

A. That was the evidence which was presented to me by Mr. Nixon, and which finally brought about the change in my estimate of the cost to the price which I have stated.

Q. Then Mr. Brown, isn't it your opinion now that $20.00 is a fair price for that pipe?

A. My opinion now is that the price fixed by me is a
3043 fair price for that pipe.

Q. And as you originally thought that $20.00 a ton was a fair price, your change of opinion is to be accounted for entirely by the Nashville purchase?

A. My change of opinion at that time was determined by the Nashville purchase, but subsequent investigation has satisfied me that it was a conclusion entirely well taken.

Q. Now did the Nashville price of $18.40 include freight?

A. Yes sir it included delivery at Nashville.

Q. What was the reason then for fixing the price at Knoxville $1.00 higher than at Nashville?

A. There was a slight difference of freight rates, I think amounting to ten cents on the ton between Knoxville and Nashville, and I felt that it would be fair to the Knoxville Water Company not to take the very lowest price which was offered for which we knew that pipe had been sold, so I set the price some higher as a fair price for a much larger tonnage delivery at Knoxville.

Q. Where did you personally get your information as to the cost of earth excavation at Knoxville?

A. I discussed the matter of excavation of earth, particularly for pipe trenches, with Mr. Rourk; I also obtained information through Mr. Nixon from the books of the company as to the prices which had been paid for earth excavation, I also knew the prices of earth excavation under similar conditions from my own experience and a knowledge of what was common throughout the south.

Q. Your information as to rock excavation was obtained in the same way?

A. Yes sir.

Q. Now as to what did you rely upon Mr. Nixon for information without making any personal investigations?

3044 A. Well for many points as to costs which had been obtained by him from his investigations of the books of the Water Company particularly. I don't remember that I depended upon his investigations solely for anything outside of that.

Q. Then as to those many points to which you last refer, you have not undertaken and do not now undertake to testify as of your own personal knowledge?

A. No sir I relied upon the knowledge obtained by Mr. Nixon for such points.

Q. Now will you, as far as you can, give to the stenographer a statement of the points on which you thus relied on Mr. Nixon?

A. I don't know that I now recall any price or information of a similar character taken from the accounts of the Knoxville Water Company by Mr. Nixon which was without corroboration from other sources used in my preparation of this estimate.

Q. In order that there may be no misunderstanding Mr. Brown as to the price you allowed for this very large item of cast iron pipe, I wish you would turn to your replacement estimate and see what price you have allowed?

A. I find on turning to my estimate that the price fixed was

$18.50 a ton as the purchase price of the contractor with 5% added for profit, making a total of $19.42½ instead of $19.45, as I stated before for the price which the pipe would net either the city if it purchased it, or the contractor, at the date mentioned.

Q. What do you say you allow the $18.50 for?

A. $18.50 is the price which the makers of pipe would have sold this pipe to the contractor; that is, they would doubtless protect the contractor to the extent of 5%, not selling to the city at a less price than $19.42½.

3045 Q. How about selling it to the Water Company without the intervention of a contractor at all?

A. It is my opinion that the Water Company might have purchased, if there were no contractors or agents in the field, pipe at $18.50 at that time.

Q. You said a moment ago that you allowed the price of $19.4/25. Did you have in mind pipe and contractor's profits, &c., at $19.42½, or pipe by itself at $19.42½?

A. That is the cost to the city or company with the intervention of a contractor or agent who gets 5%.

Q. Then as I understand you now you put the price of the pipe itself at $18.50 a ton?

A. I would not put the price of pipe at any other figure than the one stated in the estimate, which is $18.50 plus 5%.

Q. My question is, leaving out all consideration of contractor's profit and engineering and everything else except the cost of the naked pipe, what do you now say should be allowed to the Water Company for that pipe?

A. I should not change my figures of my estimate in this matter. I would prefer, if there was no intervention of a contractor or agent, that the company, or whoever purchased this pipe should have the benefit of that price of $19.42½ as a fair price.

Q. I am not asking you to vary your estimate, or to even refer to your estimate, but to give me an independent answer now as to the proper cost of this cast iron pipe on the 31, March 1901?

A. It is my opinion that that pipe could have been purchased, delivered at Knoxville at that date at the price of $18.50.

3046 Q. Is that all?

A. Yes sir.

Q. Was that your opinion when you made out your replacement estimate.

A. Yes sir.

Q. How do you explain your statement awhile ago that you allowed $19.425 a ton for this pipe; I mean the first answer that you made in regard to the pipe?

A. Because that is the cost allowed in my estimate for the pipe.

Q. What was the fair market price for the pipe delivered and not laid, and without any consideration of contractor's profits on the 31st of March 1901?

A. I consider that the price I have stated of $18.50 per ton, without the intervention of agents or of contractor's profits as a reasonable and probable fair market price.

Q. What was covered by the price of $18.40 allowed for that large consignment of pipe to Nashville in the Spring of 1901?

A. Approximately 217 tons.

Q. Did that price include contractor's profits?

A. I think there were no contractor's profits in that price, but am not certain about agents' commissions. The pipe was sold by the United States Cast Iron Pipe Company of Chattanooga who very frequently deal through Messrs. Keith, Simmons and Company of Nashville. There may have been a commission to Keith, Simmons and Company in that price.

Q. Did you examine all the plans of buildings and machinery in the office of the Knoxville Water Company?

A. As far as I know sir I investigated all of these.

Q. In addition to conferring with Mr. Nixon, you conferred extensively with Mr. Kimball, the Superintendent of the Water Company, also did you not?

A. I had several conferences with Mr. Kimball, particu-
3047 larly about obscure items—that is items not shown on the plans.

Q. You got everything from Mr. Kimball that you asked for?

A. Yes sir, Mr. Kimball treated me with very great courtesy, and gave me very freely, while he was here, such information as he had in hand.

Q. You had access to Mr. Kimball's section notes, calculations &c. at the pump station of the under-ground work, didn't you?

A. He gave me several sheets of these calculations, from which I collected data.

Q. Did you accept those calculations as correct?

A. These calculations of Mr. Kimball were, as I understand it, based on estimates. I endeavored to check his conclusions as far as possible, by conclusions of my own, and in some cases, it is my impression, that my estimates of quantities exceeded his, and in other cases they might have been lower.

Q. Is the general result higher or lower?

A. I don't know that I made comparison of the general result; that is of those items on which he had given me information.

Q. Did you accept the plans of the company as correct, as they were furnished you?

A. I made sundry inspections and measurements in order to check up the plans, as far as I was able and felt it necessary or desirable.

Q. Did you finally accept the plans as correct?

A. The plans are probably as correct as such work usually is when mapped out without all the conditions being known.

Q. Did you accept the plans as correct, and base your calculations on them?

A. My impression is that the major part of my calculations are based upon the plans.

Q. Can you recall where you departed from the plans?

3048 A. I departed from the plans in one particular, in replacing the pumping engines with a pair of pumps similar to the Worthington engine.

Q. My question had reference to the plans as connected with the work originally done. I wish to know if you found reason for rejecting the plans in any instance; not with reference to a future construction, but to the construction already made. In other words, were those plans wrong in any particular as compared with the buildings as they were originally erected?

A. I have no recollection of any changes which would be worth considering.

Q. Mr. Brown where did you ever build any Water Works?

A. My only experience in the actual construction of Water Works is at the Prison in Nashville.

Q. What was the extent of the system there?

A. The system consisted of an electrically operated pump driven from the power station of the Prison; a pneumatic system of pumping also operated from a compressor at the power station, a pair of settling reservoirs, a storage reservoir, a filter plant and the connecting pipe lines.

Q. What was the extent of the pipe line?

A. I don't remember now the length of pipe.

Q. Just enough to supply one group of buildings, wasn't it?

A. It was laid out for supplying the Prison, which is a large group of buildings.

Q. What was the extent of your connection with the construction of that plant?

A. I laid out the system and supervised its construction.

Q. Have you designed a system of Water Works anywhere else?

A. Yes sir I have designed two other systems; one for
3049 Morrillton, Arkansas and the other for Dickson, Tennessee.

Q. How big a town is Morrillton?

A. About 2500 I think.

Q. And how big a town is Dickson?

A. About the same.

Q. Did you estimate the cost of those systems in advance?

A. I made estimates of cost, yes sir.

Q. Were the systems built?

A. They were not.

Q. So you don't know how results would have compared with your calculations?

A. No sir I couldn't say how the results would compare.

Q. Did you estimate the cost of the Nashville Prison system in advance?

A. It is my recollection that estimates were made in advance.

Q. What was your estimate of the cost?

A. I don't recollect sir.

Q. How did results compare with your estimates?

A. I don't remember that either.

Q. Have you ever given testimony in a Water Plant valuation case?

A. No sir.

Q. You are not a hydraulic engineer?

A. I am a mechanical and steam engineer primarily.

Q. But you are not a hydraulic engineer?

A. No sir.

Q. The three instances that you have mentioned make the sum of your experience in water works designing and construction, do they?

A. The matter of water disposal and supply has been more or less of a question in all of the work I have undertaken for the last 20 years.

Q. But you have had no other experience in practical water works designing or construction, have you?

A. Not in the building of water works for supplying cities or towns.

3050 Q. What has been the nature of the work which you say you have been doing for a good many years?

A. I was engaged first in mining-mill work for about four years after leaving college.

Q. What do you mean by mill work?

Mr. PICKLE: Let him answer your question Mr. Caldwell.

Mr. CALDWELL: Yes, if you want to answer further.

A. Then upon cable railroad construction, followed by work as a mine manager or superintendent. That was previous to beginning my work as a teacher of engineering. I have since been engaged in general consulting work, designed a number of power plants for general power purposes, electric lighting plants, steam heating systems, and have been associated with Professor W. H. Sherman who is my colleague at Vanderbilt University in the designing of sewerage systems. I have now a small water works system in process of construction at Chickamauga Park, Georgia—I am in charge of the engineering work for the T. J. Mooney Company. I had forgotten that matter when I stated that my only work in connection with water works construction had been at the Prison. I also have the sewerage of Chickamauga Park under my charge, the engineering work connected with it, and have designed one or two sewerage disposal plants.

Mr. PICKLE: Any electrical plants?

A. Yes, sir, I designed the electric lighting plant for the city of Nashville, also designed the plant for the Vanderbilt University, and a plant for the University of Mississippi at Oxford, where we also put in a sewerage system; the electric light plant at the University of Mississippi, which lights also the town of Oxford; put in also
3051 an extensive steam heating of underground mains at the University of Mississippi, and another system of similar character at the Vanderbilt University.

Q. Did you ever buy any cast iron pipe for water works purposes?

A. Except in an advisory capacity in out work at the Prison and Chickamauga Park.

Q. Did you ever supervise the laying of a pipe system for a water company?

A. I have had general supervision of the work at Chickamauga Park.

Q. Have you ever set, or supervised the setting of a pumping engine for water works?

A. Excepting those at the Prison.

Q. What is the size of the water works system at Chickamauga Park?

A. In that system they have perhaps three miles of pipe.

Q. Were the systems designed for Morrillton, Arkansas and Dickson, Tennessee larger or smaller than the one you have designed for Chickamauga Park?

A. They were larger.

Q. How large were they?

A. The estimated cost of the Morrillton plant was about $32000.00 or $33000.00 and of the Dickson plant about $25000.00 as I recollect.

Q. What will the plant at Chickamauga Park cost?

A. Probably $20000.00 roughly.

Q. Did you ever accept in those instances estimates for the cost of trenchings for water pipes?

A. I have made it my business to learn the cost of excavation and the cost of laying water pipe under various conditions and have used such knowledge to advise in certain cases as to cost of such construction.

3052 Q. What depth of trenches for water pipes would you allow in the city of Knoxville?

A. Trenches were three feet deep and over, depending upon the size of the pipe.

Q. Was that what you found they were, or what you estimated they ought to be?

A. That was my finding as to what they were, and was corroborated as a reasonable depth by my knowledge of what was a common practice in the south.

Q. How did you get your knowledge of common practice in the south?

A. I have made a special study of the subject for the past six years and have been familiar with the prices which have been bid on such work.

Q. You mean you have made a special study of trenching for water pipes for the last six years?

A. I have made it my business to determine, as the opportunity presented, the cost of such work for the past six years.

Q. Do you mean to say you have made such a special study in reference to water works construction?

A. I have made that a special study with the idea of doing water works construction as it presented, also of being able to advise on work of that character.

Q. What width do you allow for trenches of water pipes?

A. The width of trenches vary from two feet to thirty and thirty-six inches, depending upon the size of pipe, convenience in excavation, &c.

Q. For what sized pipe would you allow a thirty-six inch trench?

A. A thirty-six inch trench would probably take from 20 to 24 inch pipe.

Q. What width of trench would you allow for 12 inch pipe?

3053 A. I would say for a 12 inch pipe, a trench from 28 to 30 inches would ordinarily be the width.

Q. Did you ever lay a pipe of that size, or supervise the laying of one?

A. I have laid considerable wrought iron pipe of that size in trenches, and if I recollect correctly, put in pipe of a larger size on some of my work in mining mill construction.

Q. Did you ever do, or ever supervise any work of rock excavation in trenches for water pipes in a city?

A. I have not supervised or performed any work of rock excavation in trenches in a city, but I have done that in close proximity to buildings on the Vanderbilt University campus.

Q. Did you ever build an earth reservoir for holding water?

A. No, sir, I have not that I recollect. Had to do with the construction of several, but not immediately supervising the work. I understand thoroughly the nature of the work and method of construction.

Q. Before you were called to testify in this case, did you know anything about the cost of filters?

A. Yes, sir; I did considerable work for the Jackson Filter Company; after the installation of their filters at the prison, made designs for two or three filter plants for the Jackson Filter Company, including estimates of cost.

Q. Your estimates of filter cost in this case are based upon Jackson filters, are they not?

A. Yes, sir.

Q. When did the Jackson Filter Company begin to install filter plants for municipalities?

A. I coulda't answer as to that sir. They had already installed, as I recollect, several filter plants when I first knew them.

Q. When did you first know them?

3054 A. I first met Mr. Jackson when the work of the prison filter plant was under consideration; I am not just able to fix that date, but think it in 1898 or 1899.

Q. Now you say they had already installed some filter plants for municipalities before that. Can you tell me where?

A. No, sir, I don't recollect where. It is my recollection that such plants had been installed.

Q. Do you know whether or not prior to the time you mention any sanitary engineer had ever approved the Jackson style of filter for municipal purposes?

A. I could not say, sir.

Q. Have you ever done any work of water works construction in connection with any filters except the Jackson filters?

A. No, sir.

Q. Are you still connected with the Jackson Filter Company?

A. No, sir, I have never been connected with them excepting temporarily, to do a certain piece of work.

Q. In your estimate of the cost of the intake tower of the Knoxville Water Company, there is an item of concrete 450.8 yards at $4.80 a yard. This is within 9.2 yards of what Mr. William Wheeler estimates it, his figures being 460 yards. I understand therefore that practically you agree with Mr. Wheeler as to quantity?

A. I think for all practical purposes that those two estimates are not far apart.

Q. What character and kind of cement did you estimate?

A. I estimated on native Portland cement; American Portland cement as it is termed.

Q. In what proportions did you allow the cement, sand and broken rock to be mixed. I refer to that now which enters into your cost of $4.80 a yard?

A. One, three and six; one part of cement, three parts of
3055 sand and six parts of broken stone.

Q. How much did you allow per barrel as the cost of cement?

A. $2.40.

Q. How much do you allow per cubic yard of rock?

A. My estimate was based on the use of the rock from the evcavation of the property and its being broken by hand on the ground, for which I estimated the cost of 40 cents per cubic yard.

Q. How much for sand?

A. Sand 40 cents delivered at the river bank.

Q. How much broken rock do you estimate it takes to a yard of concrete; also how much sand and how much cement, the concrete being mixed in the proportions you have given?

A. I base this estimate upon hand broken stone, 45% of the voids being filled, and upon river sand with 33% of the voids being filled. This gave, in the proportions of 1, 3 and 6 a mixture of 6.3 yards of concrete, which included one yard of cement, three yards of sand and six yards of broken stone. The yard of concrete would therefore contain 16/100 of a yard of cement or about 1 15/100 barrels; 48/100 of a yard of sand and 96/100 of a yard of broken stone.

Q. What labor cost have you allowed for taking the various materials from their dumping ground or store house, mixing and placing the concrete, including the usual foreman and supervision, tools, &c. in a structure of the character of the Intake tower?

A. The cost of the labor, tools and the handling of this material for common work, presenting no special difficulties, I estimated at 75 cents per cubic yard. However, for the work of constructing the Intake tower, I made an allowance for increased cost of labor, &c. of 40 cents additional.

Q. Making how much?

3056 A. Making for that the labor cost of $1.15 per cubic yard.

Q. Now how much does that make the labor and materials per cubic yard?

A. The material would cost as follows: 16/100 of a yard of cement, or about 1-15/100 barrels approximately at $2.40 would

come to $2.76; 48/100 of a cubic yard of sand at 40 cents would be 19 cents and 96/100 of a cubic yard of stone at 40 cents would be 38 cents, which would make a total of $3.33.

Q. And you add to that $1.15?

A. Yes sir.

Q. And that makes $4.48 a yard does it?

A. That makes $4.48 per yard.

Q. Now if you allowed $4.80 a yard in your replacement estimate, there is a mistake in one of your calculations, isn't there?

A. No sir.

Q. How do you account for the difference?

A. I put the rest on plastering the tower, or the outer coat of the tower.

Q. Now Professor it took you something like a half an hour to figure out the proportions of rock, sand and cement in a yard of concrete, didn't it?

A. I didn't take account of the time sir.

Q. In view of the fact that making an estimate of this kind involves considerable knowledge and calculations of this sort, do you still adhere to your statement that it doesn't require a professional man to make estimates of this sort?

A. I am inclined to think, Mr. Caldwell, that a concrete contractor probably would have been able to have fixed the price on this concrete very quickly, without the analysis of the work which I have gone into. I make an analysis of this sort in order to determine the price analytically.

Q. Had you made the analysis before?

3057 A. Yes sir, I had these figures however in a different form from what you asked about them, and the changing of them, while it was perfectly simple, it involved a little error in my calculation which I did not detect for some time. That was the cause of its taking so long to make the calculation. I have the figures in my notes on a basis of a yard of cement, three yards of sand and six yards of broken stone.

Q. How many cubic feet in a barrel of Portland cement weighing 380 pounds?

A. The usual cement barrel contains approximately 3¾ cubic feet.

Q. In adopting the above proportions, together with the grade and character of cement which you testify to, did you make any calculations as to the stability of the tower built of such material and in such proportion, and whether or not it would withstand erosion and damage by floods, which reach very close to the top of the tower, and did you in any way consider the suitability of the materials and proportions that you used for a structure of this character located as it is?

A. Well those points were considered to a greater or less extent by me, and the selection of the mixture was made after such consideration. This mixture is a common mixture for use in work of similar character which has to withstand much severer loads, and subject to as much erosion and similar contingencies. I would like to add to the answer, if you please, that the mixture outlined of one part of

cement, three of sand and six of stone is a common mixture used by the railroads of this section for the making of culverts, which have to withstand equally erosion, much greater vibration and pressure than an intake tower of this character would have to bear. I would also say regarding the cost of this material that in my esti-
3058 mates, $4.80 represents simply costs to contractor, that 17% is added in my estimates to that for contractor's profits and contingent expenses amounting to $5.62 for the concrete work itself exclusive of forms, or excavation of any character. Forms were estimated at a sum total of $452.00, or a little in excess of $1.00 per cubic yard, making the cost of concrete and forms in excess of $6.62 per cubic yard.

The further taking of this deposition was adjourned until 3:00 p. m., Tuesday December 15th, 1903.

3:00 P. M. (TUESDAY, *December 15th*, 1903).

The further taking of this deposition was resumed.

Continuation of cross-examination of CHARLES S. BROWN:

Q. What calculations did you make concerning the stresses and forces that the Intake tower would be subjected to, and what result did you obtain?

A. Such calculations were unnecessary sir. The Intake tower had been designed by engineers, had been standing there in flood and storm for a number of years, and it was evident on the face of it that the structure was sufficiently strong to withstand any stresses which would be produced by floods.

Q. If it be true that the tower as constructed has stood the tests that you have indicated, how can you be sure that if constructed out of lower grade of cement, such as I understand you to adopt in your replacement estimate, it would still have stood, and if you do conclude that with your concrete it would have stood as well as with the concrete with which it is now constructed, how could you arrive
3059 at that conclusion without making these calculations?

A. As I stated in my previous answer, the stresses to which a tower of this character would be subjected are much less than those met in a railroad culvert sustaining earth pressure and the pressure of passing trains. There could be no question among competent engineers of the stability of a structure of the character designed in accordance with the plans of this structure.

Q. Do you think that the stresses upon a structure of this kind are the same as those upon a railroad culvert?

A. They are of the same character, and in a railroad culvert are far more excessive.

Q. Do you know what mixture of concrete Messrs. William Wheeler and Kimball adopted in building the tower?

A. I am under the impression that I understood subsequent to the making of the estimate that the mixture was 1, 2½ and 6.

Q. That is what is known as a richer mixture than yours, isn't it?

A. It is slightly richer in the mortar.

Q. And it is better isn't it?

A. Not necessarily sir. A mixture which is strong enough is not improved by being made too strong. That tower might have been made of cast iron and been stronger, but no better.

Q. Well you have approved it already in your deposition as being properly constructed in respect to the concrete used, hav-n't you?

A. I certainly have no criticism to make of the engineering work shown in the construction of the tower. It shows good engineering and a good deal of ingenuity.

Q. Who determined this mixture of concrete, you or Mr. Nixon?

A. I did.

3060 Q. What was your reason for adopting a cheaper mixture than the one used?

A. I was not informed at the time of the mixture and as to what the mixture was, it didn't seem to me to be a point of special importance. A mixture which would be ample for the purpose was all that was necessary.

Q. Do you understand, or did you understand that this tower was so built as to require plastering on the outside of the concrete?

A. Yes sir.

Q. How did you get that information?

A. I saw the tower and examined it personally very closely.

Q. And you say that it is plastered on the outside?

A. I may have conveyed that idea; I did not mean that it was plastered with a trowel. It was evidently constructed by placing a layer of mortar against the forms and putting the concrete against this layer. That is the common method of constructing work of that character, and makes a better construction than to have the surface afterwards plastered.

Q. How did you get your prices for cement?

A. I got them by determining the factory cost of cement of that date and the cost of shipment to Knoxville.

Q. And what brand of cement?

A. There are several brands of approved quality which could have been put into Knoxville at that time at the cost stated. The brand which I had particularly in mind was the Atlas.

Q. At what time do you mean?

A. March 31, 1901.

Q. Had there been any changes in prices of Atlas cement shortly before March 31, 1901?

A. It is my recollection that the cost of Atlas cement was

3061 somewhat lower in January and February than in March. I obtained the cost of a shipment made on the 29th day of March 1901.

Q. How was it for the six months preceding January 1901?

A. I don't know that I went into the matter of the cost previous to that date. I may have data bearing on that subject, but am not certain.

Q. I wish you would examine voucher #824 of the Knoxville Water Company and see if it is not for Atlas cement that went into the Intake tower. I call your attention to the distribution on the back of each one of the bills attached to the voucher, and having

examined the bills, which appear to be 20 or 30 in number, say if the uniform price of Atlas cement shown is not $2.90?

A. Apparently these bills show the purchase of a large number of barrels of Atlas cement, purchased in lots of 10 barrels each of a local dealer at $2.90 with an apparent profit to the dealer of 50 cents a barrel. I think any contractor building that Intake tower would have purchased his cement direct at the minimum cost. My estimates are based upon the plant being built by contract.

Q. Where do you find upon the bills that there is an apparent profit of 50 cents a barrel?

A. There is no such statement on the bills, but from my knowledge of the cost of Portland cement at that time, there must have been that amount of difference between the factory cost and the cost by retail shown by these bills.

Q. Did you ever buy any Portland cement?

A. Yes sir.

Q. How much did you ever buy?

A. I bought for the T. J. Mooney Company last Summer about three car loads I think which cost, laid down at Chickamauga
3062 Park $2.55 a barrel.

Q. Prices last Summer are not comparable to prices of the Spring of 1901, are they?

A. The prices of last Summer were higher than the prices of the Spring of 1901, and moreover Chickamauga Park is situated on a little branch road on which the cost of transportation of a barrel of cement from Chattanooga, if I recollect correctly, is 10 cents a barrel.

Q. Did you buy any cement in the Spring of 1901?

A. No sir not that I recollect, any more than small lots at retail prices, possibly at the rate of one or two barrels per month, I paid $3.00 a barrel for Allson's Imported Cement.

Q. And yet you say when you see that the Knoxville Water Company paid $2.90 for about $1200.00 worth, that your theoretical prices must control over the actual prices paid by the Knoxville Water Company?

A. I would say regarding this that my practical knowledge of the cost of cement at that time has demonstrated to me that my price is correct, and that it could be bought in car load lots at that price.

Q. Do you say that this was not bought in car load lots which I have shown you the bills for?

A. I am very well satisfied that the bills show no evidence that it was purchased at car load prices or in car load lots, and that if it was purchased in that manner, that the Knoxville Water Company paid too much money for their cement.

Q. So that even if it was purchased in car load lots, you still claim that your knowledge of prices at the time when these purchases were made must control in this case, and that the prices actually paid were wrong.

3063 A. The prices which I have stated will control in my estimates. I see no reason to make any change in that particular.

Q. Suppose that bids were taken for cement when this cement for the Intake tower was purchased, and that communications was

opened with the cement mills and that this was the lowest price that it could be obtained in quantities in excess of 300 barrels, would you still hold to your opinion?

A. Unless the books of the cement company were shown me, and the prices I have named demonstrated to be incorrect, I should still hold to the estimate I have made.

Q. Now will you please be good enough to state the evidence upon which you make your very emphatic statements?

A. I base my information on bills shown me of the Atlas Cement Company of cement purchased on the 29th day of March 1901.

Q. Who showed you those bills?

A. Nashville contractors.

Q. Have you any reason to believe that they are any more trustworthy than those of the Knoxville Water Company?

A. I have reason to believe that with me they carry more weight than any bills of the Knoxville Water Company.

Q. Why is that so?

A. Because I am thoroughly acquainted with the people who showed me these bills, and have known them for a good many years.

Q. Were any of those bills for cement furnished here in Knoxville?

A. No sir.

Q. Do you think you are entirely safe in swearing to Knoxville prices on Nashville bills?

A. I do.

Q. Why do you think so?

A. Because I took pains to investigate the factory cost and the rate to Knoxville and other elements entering into the cost
3064 of cement delivered at Knoxville.

Q. What did you find about Knoxville prices?

A. I don't just now recall the prices which were discussed; aside from this I am of opinion that at that time cement could be purchased here at approximately $3.00 per barrel at retail.

Q. And how much in car load lots?

A. I think I have stated in my answer that that was practically the only information that I had as to the cost of cement in Knoxville that I recollect of.

Q. So you don't know what it would have cost here in car load lots?

A. $2.40 a barrel.

Q. Have you got the information upon which you base that statement?

A. Yes sir.

Q. I wish you would produce it, if you please?

A. I would like to make a correction here in what I have stated heretofore. The date of this purchase of cement was February 20th 1901 and not March the 29th. The price was $1.30 per barrel f. o. b. factory; freight to Knoxville is 98 cents per barrel, counting a barrel 400 pounds instead of 385 pounds, cartage 8 cents a barrel, which is 400 pounds, at 2 cents a hundred, or at the rate of 40 cents a ton. This represents a total of $2.36 per barrel delivered on the build-

ing site; in order to be fair I have made that price $2.40 a barrel, which I think is a fair price.

Q. What do you get that from, a letter?

A. I get that by personally looking at the bills.

Q. What bills?

A. The bills of the Adamant Stone and Paving Company of Nashville.

Q. Have you any letters on this subject?

A. No sir.

Q. Did you make any other inquiries except the one you have just referred to?

3065 A. I made other inquiries, but I have no data as to the cost at a nearer date than that stated.

Q. Did you write no letters to the cement factories?

A. I wrote I think one letter to James B. Speed and Company of Louisville.

Q. Did you get an answer?

A. Yes sir.

Q. What did it say about prices?

A. That letter related more particularly to Louisville cement, and as they are only dealers in Portland cement, I don't remember that I touched on Portland cement with them.

Q. So you base your estimate of prices at Knoxville on a single sale made at Nashville?

A. I felt that that sale was conclusive, representing the reasonable cost of Portland cement of that character at that time.

Q. Don't you think it would have been more conclusive if you had found what it was delivered at Knoxville for?

A. If it was possible, perhaps it would have been somewhat more desirable, but so far as the factory price is concerned, that is sufficient so long as the freight to Knoxville is known.

Q. Is the factory price to all localities the same?

A. I think that very frequently the factory prices to distant points are likely to be less than those at near by points, or the points where there is competition are likely to be lower.

Q. What is the business of the Adamant Stone and Paving Company to which you refer?

A. Manufacturers of cement pavement.

Q. Isn't a regular dealer in cement all the year round likely to get better prices than an occasional purchaser?

A. Except where cement is purchased in large lots at one
3066 time I am inclined to think there would be very little, if any difference in the price.

Q. Is it the custom of cement factories and dealers to be represented by agents, and in places where they have agents, to refer proposed purchases to those agents?

A. It is at times; at other times the larger purchaser can purchase without any reference to local agents.

Q. Is there any agent at Chickamauga Park for the Atlas cement company or any other cement company?

A. The agent at Chickamauga Park is a firm in Chattanooga

through whom the cement was handled, and who made, at the price I have stated, a profit of 10 cents a barrel for handling the cement.

Q. Why was it Professor that you made no inquiry at Knoxville about cement prices?

A. It is my impression that Mr. Nixon made inquiries about cement prices but that it was impossible to obtain anything but a retail cost price of cement here.

Q. Isn't it a fact that he found them higher than was desirable?

A. I don't know that we would expect cement to be sold at retail as cheaply.

Q. Do you remember what he did find the price to be?

A. No I do not remember just at this time. I might be able to find some record of it. The matter was certainly discussed between us very considerably, as we felt that the matter of proper cost of cement here was very necessary.

Q. I hand you vouched #814 of the Knoxville Water Company and will ask you if it does not show 69 yards of macadam purchased at 65 cents a yard, and 2 yards of granito at $1.25 a yard in November 1900, and if it does not appear on the back of the voucher that that was used in the Intake tower?

3067 A. This is a bill apparently of the Evans Marble Company to the Knoxville Water Company for 69 yards of macadam at 65 cents per yard, amounting to $44.85; 2 yards of granito at $1.25 amounting to $2.50, a total of $47.35. It has a note "hauled during the month of October 1900" and is charged out on the back "Intake tower $47.35." I would state in this connection that 60 cents to 65 cents was the price which we determined for macadam hauled or delivered from points away from the site of the plant; that the construction contemplated in my estimate was to use the debris from the rock excavation which could be hand-broken at a cost of 32 cents to 35 cents per cubic yard. I place a fair value of this hand-broken material at 40 cents a yard. I have known material of this character to be broken for one cent a bushel or 21.8 cents a cubic yard.

Q. Well when the excavation happens to be already made Professor, how would you get any debris over at the pump station to hand-brake?

A. This was not considered to be in the condition in making an estimate of replacement value; but in case hand-broken stone were not available on the ground, my investigations satisfied me that marble sprawls could be delivered by water for 35 cents per cubic yard against 40 cents, which is the price I placed upon stone broken by hand on the site.

Q. Well where would you get your marble sprawls from?

A. My understanding is that there are marble quarries and works along the river from which this material could be obtained free for the haulage or cartage.

Q. Who gave you the information that that could be gotten free by the hauling?

A. That was determined I think by Mr. Nixon.

Q. You don't know anything about it yourself, do you?

A. Only from the statement of Mr. Nixon who investigated the matter.

3068 Q. Well do you mean to apply your 35 cents a yard to the unbroken sprawls or the broken stone or the macadam made from them?

A. It is my understanding that these sprawls are readily obtained of such size as to require no breaking, in which case they would make a very desirable material for the construction of concrete.

Q. Did you get that information from Mr. Nixon also?

A. That was a matter which was talked over between Mr. Nixon and myself.

Q. Have you ever been to any of these marble quarries?

A. No sir I have been too busy on other things.

Q. You don't know whether or not it is a fact that the sprawls to be gotten there then are wholly unsuited for this purpose?

A. I have in my walks about the city seen piles of marble sprawls which struck me as being admirably suited for work of this character.

Q. And you conclude from that that Mr. Nixon's information is correct?

A. I know from long experience with Mr. Nixon that he is usually correct in what conclusions he comes to.

Q. Then your information is based on knowledge of Mr. Nixon and not of the macadam?

A. My information is based on this point from Mr. Nixon's statements, but I myself have seen the material and am satisfied that it would be a very suitable material for such work.

Q. Then are you, by your logical processes or otherwise prepared to swear now that those marble sprawls as obtained at the quarry are suitable for that purpose?

A. I am prepared to swear to the best of my knowledge and belief that they would be suitable for that purpose.

3069 Q. Don't you modify that statement and state that you are prepared to swear from "belief" that such would be suitable?

A. No sir, because I have some knowledge on the subject.

Q. Now will you look at voucher #908 of the Knoxville Water Company and see if the line of ink writing on the same does not show that 20 yards of macadam were hauled for it at 35 cents a yard?

A. This voucher #908 of November the 9th, 1900 shows that the Knoxville Water Company bought of Oliver King a number of yards of sand at 75 cents per yard, 5 barges of sand at 20 cents per yard and the hauling of 20 yards of macadam at 35 cents per yard. I think I placed the cost of sand at the power station at 40 cents instead of 20 cents as this voucher shows.

Q. The 35 cents for hauling the macadam added to 65 cents the cost of the macadam, makes $1.00 a yard, doesn't it?

A. If 35 cents for hauling were added to 65 cents as the price of the macadam at the yards, that would make $1.00 a yard for the macadam. There is no evidence on these vouchers that the macadam charged at 65 cents per yard is the same macadam that was

hauled for 35 cents per yard, and from all the evidences which we were able to collect in making this investigation, the cost of macadam delivered at the time stated was 60 to 65 cents per yard, dependent upon quantity.

Q. Now where is the evidence that you were able to collect?

A. This evidence was collected by Mr. Nixon previous to my arrival here.

Q. The price for sand shown there is 20 cents in barge load lots delivered at the pump station, isn't it?

A. Yes sir.

Q. And 75 cents otherwise?

A. Yes sir so this bill states. We however, determined that sand had been delivered here for 60 to 65 cents a yard; that
3070 it could be obtained for 25 cents at the river bank and that the hauling varied from 30 cents to 35 cents.

Q. You say we obtained it; do you mean that Mr. Nixon obtained it?

A. Mr. Nixon collected information of that character. I don't remember that I obtained any prices from local people in the matter of sand, excepting possibly one contractor or dealer, I have forgotten which, who, as I recollect, corroborated the statements which had been made to me by Mr. Nixon.

Q. What was that contractor's name?

A. I don't remember his name, sir.

Q. Where were you going to locate your new, or replacing plant, Mr. Brown?

A. It was my understanding that the fair replacement value of the plant of the Knoxville Water Company was desired, or the cost of construction of a plant substantially of the same character and design; so my estimates were based on the construction of a plant located at the same point as the present plant.

Q. Would you reconstruct the engine pits at the pump station as they are now?

A. No, sir, not entirely.

Q. Would you put them at the same place?

A. They were supposed to be located at the same point.

Q. What changes were you going to make in the pit?

A. Simply such change as would be necessary to place in the pit a second Worthington engine instead of the Deane engine in what is known as the new pit.

Q. How much extra excavation would that require?

A. That would require the enlargement of the tunnel between the pits to a very considerable extent—possibly the removal of it entirely and the throwing of the two pits into one.

3071 Q. What did you allow as the cost of that additional excavation?

A. $1.00 per cubic yard was the cost of the additional excavation.

Q. And what did the additional excavation amount to in yards?

A. I placed this at 250 cubic yards.

Q. Of rock or earth?

A. 250 cubic yards of rock.

Q. How much additional earth excavation?

A. I don't know that I have that separated.

Q. Is that 250 cubic yards all the additional excavation that would be necessary?

A. That was the result of my estimate.

Q. Do you accept Mr. William Wheeler and Mr. Kimball's estimates of the present size of the pit as correct?

A. You mean dimensions of the pits?

Q. Yes, sir; that is I mean do you say that they have correctly stated the dimensions of the pits?

A. That is my recollection, that the measurement of the pits show the same sizes as those on the plans practically, although I will not be sure of this as I did not make the measurement of the pit in order to determine if the plans were correct.

Q. Is the estimate of excavation made by Mr. Wheeler and Mr. Kimball accepted by you and Mr. Nixon?

A. I made my own determinations of the excavations from all the data which I was able to collect from the plans and by conversation with the engineer at the power station, and by various records which I obtained here at the office.

Q. And what result did you reach?

A. The total quantities of rock which I obtained were not equivalent to those stated by Mr. Wheeler, I think, in his deposition.

Q. How much less than Mr. Wheeler's result was yours?

3072 A. About 450 cubic yards.

Q. Your total was 1807.2 cubic yards, wasn't it?

A. I think you have got earth excavation there.

Q. Yes, I have.

A. The total of rock was 1735.4 cubic yards.

Q. Now in your 1735.4 do you include the 250 yards of additional excavation?

A. Not all additional. There was some excavation there for the present tunnel.

Q. I understand, but I understood you to say that 250 additional yards of rock excavation would be necessary?

A. I didn't intend to make that statement, Mr. Caldwell.

Q. Well, you can state now then how much additional rock excavation would be necessary to carry out your plan?

A. I find the difference to be about 173 cubic yards.

Q. Is that included in your total of 1735.4 cubic yards?

A. Do you mean the 173 yards?

Q. Yes, sir?

A. Yes, sir, that is included.

Q. Then in the first instance there is a difference of 357.6 cubic yards of earth excavation between your estimate and Mr. Wheeler's; that is to say 1735.4 subtracted from 2093?

A. It is 357.6 cubic yards.

Q. Adding to that 357.6 your 173 yards makes the total difference between your estimate as it appears in your replacement account and Mr. Wheeler's 530.6 cubic yards?

A. 530.6 cubic yards.

Q. That is to say the result of your calculations is to reduce Mr. Wheeler's total of rock excavation by about 25%?

A. Yes, sir, about 25%; a little in excess of 25%.

Q. Now I will have to ask you again what, if any additional earth excavation your replacement plan provides for—I mean in the engine pits?

3073 A. I have no record of the difference in earth excavation right here. I shall probably be able to determine what this should be.

Q. Well was additional earth excavation contemplated?

A. I would not be able to say without looking thoroughly over my notes.

Q. Leaving out the tunnel between the pits and considering only the pits themselves, would you make any changes in the dimensions of the pits in erecting the plant intended to replace the present one?

A. Only such changes as would be necessary to get in the pumping engines.

Q. Well now what would those changes be?

A. Possibly a slight change of form or section making possibly an elliptical pit in order to get room for a second engine.

Q. Where would you make that elliptical pit?

A. By making an elliptical pit, I mean the throwing of the two pits together and the changing of their form or section sufficient to get in a pair of the Worthington pumps. This pit from the estimates made by me could be gotten into the present form of house without difficulty.

Q. Would you cut away entirely the rock wall between the two pits?

A. I think myself that such plan would be quite proper.

Q. Well, was that contemplated in your replacement estimate?

A. That was considered.

Q. Well is that a part of the plan provided for by your replacement estimate?

A. It is my impression that my estimates were based simply upon the enlargement of the tunnel, but I considered at that time that the change of the dimensions of the pit to a form perhaps better suited to the reception of the two engines could be accomplished with-

3074 out material change in the quantities of material used or work done.

Q. Well, what I am asking now is whether or not this replacement estimate does contemplate the entire removal of that rock wall or only the enlargement of the tunnel?

A. As I think I stated the estimate was based upon the enlargement of the tunnel with the idea in mind that a change of form necessary for the reception of the two engines could be easily accomplished without additional cost over the estimate.

Q. You mean you think that the rock wall could be removed for the same amount that the tunnel could be enlarged for?

A. I am inclined to think that the entire wall could be removed and the excavation of the two pits performed together as an open cut

from the river at a much less cost than the price I have outlined here.

Q. Now in arranging the pit in which the Deane engine is located, for a horizontal engine, wouldn't you have to make considerable changes in the dimensions of that pit?

A. Those changes could only be determined after laying out a plan for the work, which of course I didn't undertake to do, but I am of the opinion that such changes of form could be accomplished without adding to the cost of construction, and in fact probably cheapening it considerably.

Q. You would tear away a part of the house and enlarge the Deane engine pit?

A. In making such change the plans of the house could be modified if necessary. I am confident that such changes would not be necessary, and such modifications could be accomplished at the same cost as for the present house.

Q. I asked if you would tear away a part of the house because you said awhile ago that you thought with such modifications of the pit as you were suggesting the engines could be accommodated
3075 in the same house or a similar one. Now assuming that there is no house there and that this is entirely original construction, I understand that your plan is to make an excavation there which shall cover the entire space now occupied by the two pits, the tunnel and the wall between the two pits, is that right?

A. I would state that that plan which you have outlined was considered when this estimate was made, but that simply the enlargement of the tunnel which would accommodate one or such portion of the other engine as could not be placed in the Deane pit was all that was estimated upon.

Q. Then your plan of replacement is, assuming the ground to be there in its natural condition, to excavate the pit where the Worthington engine is situated to its present dimensions, to excavate a larger pit in the place of the Deane pump pit, and to excavate a larger tunnel between those two pits?

A. The estimates of the quantities had been based upon such method of construction, but it was considered that such quantities at the prices placed against them would represent fairly the cost of such construction; but that modification might be made, which would not only cheapen the cost of construction of the pit and make it less than the amounts set for such cost possibly to better advantage, had not these quantities been determined previous to the consideration of this matter. Doubtless instead of cutting out additional rock between the two pits, the plan of throwing the two pits together and blowing out the rock in an open cut to the river would have been considered more desirable on account of its lesser cost.

Q. Well now as that is apparently correct, why wasn't that plan adopted in the replacement estimate?

A. As stated, these quantities had been determined from
3076 the plans previous to the consideration of this matter of change of the engines, and it was considered that while these

quantities might not represent actually the quantities of material removed or the actual cost of removal, yet that they were quantities which were amply sufficient, and the cost amply sufficient to do the work in the manner outlined.

Q. Now in order to test the correctness of that last judgment, tell me how much you would enlarge the Deane engine pit, leaving out of consideration the removal of the wall between the two pits?

A. As I stated previously, I made rough estimates to determine if it were practicable to place these two engines together in the pits as outlined and it was my conclusion that it could be done, but if even in the present engine house as designed and built two pumps of that sort could be placed, it would be possible with the same expenditure of money to have placed the pumps in such a pit.

Q. You don't understand me; I am not asking about expenditures, but what would be the dimensions of the pit which would replace the one where the engine is now?

A. That I cannot say without making a calculation of the amount of space required.

Q. Suppose you make that and give it to me in the morning?

A. I will endeavor to.

The further taking of this deposition was adjourned until Wednesday morning, December 16th, 1903, at 9.00 o'clock A. M.

3077 WEDNESDAY MORNING,
December 16th, 1903—9.00 o'clock a. m.

The further cross-examination of CHARLES S. BROWN was continued.

A. In answer to the last question propounded yesterday afternoon, I would state that the plans are not here at the office at the present time, so that I cannot give the desired information at the present moment.

Q. Under the general head of "River Station" and sub-head of "Concrete" you allow 1116 cubic yards of concrete at $3757.29 which with 15% added amounts to $4320.88. That would appear to make the concrete price a little less than $4.00, is that correct, or is there something else to be added to your price of concrete?

A. This sum represents the cost of a number of different items of concrete of different mixtures, and prices varying according to the mixture used. Prices vary from $2.85 with 15% added or $3.28 to $5.00 with 15% added or $5.75, depending upon the mixture, the kind of cement used and the difficulties to be met in the construction.

Q. With the 15% off, which I do not understand to be a part of the price of the concrete, you have one item of concrete as low as $2.85 a yard. What kind of cement do you use in making that concrete?

A. The prices of $2.85 to $5.00 which I have mentioned are contractor's costs. Twelve per cent. of the 15% represents the contractor's profit and contingent expenses. So that the price allowed

for this work would be $3.19 as a minimum and $5.60 as a maximum representing the contract price for which this work could be done. The price of $3.19 represents the cost of a natural cement concrete of mixture 1, 2 and 4, one of cement, two of sand
3078 and four of broken stone. The stone at 40 cents, four yards would be $1.60; the sand at 40 cents, two yards would be 80 cents; 7 2/10 barrels of Louisville or natural cement at 87½ cents would be $6.30, the sum total of this would be $8.70. This mixture would make approximately 4½ yards of concrete, at $1.93 per cubic yard for the materials at the prices named. The cost of labor, tools, &c. per cubic yard is placed at 75 cents, although the cost of laying concrete is usually estimated at 50 cents a yard, and Baker, in his Masonry Construction says that with the cost of labor at $2.00 a day, that the cost of laying concrete should not exceed $1.00; with labor at $1.00 a day (the price at this time) the cost of laying concrete at this time should not exceed 50 cents a day, and I have placed the minimum price at 75 cents 50% more than what contractors, with whom I am well acquainted, state is their cost price. This would make the cost of such concrete in place $2.68 per cubic yard with materials at the prices named. I have however made that price $2.85 per cubic yard, that is adding 17 cents to the price of $2.68, which I considered an ample price for this work. The prices for Portland cement concrete vary from $4.75 as a minimum to $5.00 as a maximum. For this work of mixture of one part of cement, three parts of sand and six parts of broken stone, costing $4.05, including labor at 75 cents and the cost of materials at $3.30 a yard, from 70 cents to 95 cents being added to cover possible contingent expenses in the way of forms and difficulties met with in the construction.

Q. Do you rely entirely on Baker's treatise for your proportions and prices?

A. As I stated I believe in my previous answer Baker's cost was $1.00 a cubic yard with labor at $2.00 a day. I rely more particu-
larly upon my own knowledge of the cost of work of this
3079 character and upon information obtained from contractors and engineers. I have here an analysis of the matter of labor cost.

Q. My question was simply whether or not you relied on Baker's treatise?

A. I should like to show you that I do not rely on Baker.

Q. Well I should like your "yes" or "no" for that as well as anything you might say about it, and I should not object to you afterwards making any explanation you desire?

A. Yes, I should like to put this in as I think it is very pertinent to the case. "The usual concrete gang operated by contractors consists of a foreman, three wheelers of materials, three mixers, three wheelers of concrete, one spreader and two tampers. This labor is estimated at a cost of $1.00 a day amounting to $12.00 for the 12 men; the foreman at $2.50 a day, a total of $14.50. Such a gang can put in under ordinary conditions three yards of concrete per

hour, or in 10 hours 30 yards of concrete, and the cost will be 48 7/10 cents per hour. The tools required are six shovels at $1.25 amounting to $7.50; two tamps at $2.00, $4.00; six wheel-barrows at $3.00, $18.00; finishing tools $3.00, a total of $32.50. My information furnished me by contractors who do large quantities of this work show that such tools would be sufficient for putting in from 600 to 1000 cubic yards of concrete, or the cost per cubic yard for tools would be less than five cents. Adding this to the labor cost would bring the sum total up to 53 7/10 cents as the fair labor and tool cost of placing a yard of concrete. I have set the contractor's cost of such work at a minimum of 75 cents. Another contractor places the cost of this work at 50 cents——

Mr. CALDWELL: I have refrained from objecting to the
3080 answer, but this is clearly improper as to what another contractor says; what we are after is the witness' judgment, and I will ask the court to strike that part of the answer out.

The COMMISSIONER: Unless the question was specifically asked him, he would have no right to state that. The question is, what do you think it was worth. In answer to a question like the one asked, I don't think the witness has a right to quote what any contractor has told him.

Q. Isn't your analysis of labor cost taken literally from Baker's treatise on masonry?

A. No sir; Baker's statement is merely incidental and corroborative. I should have been able, from my own experience and knowledge of such work to have anaylzed the cost of this item without any information from Baker, or any similar authority.

Q. Did you ever keep an account of your own to show those prices that you have set out in your labor analysis?

A. I have done some concrete work on which I have kept very careful account of the cost.

Q. And is your testimony based on that?

A. My knowledge is based on those various experiences which I have had.

Q. Leaving out of consideration the percentages added for engineering &c. and looking only to the concrete and labor cost, did you ever put in any concrete as low as $2.85 a cubic yard?

A. Making proper allowances for differences in cost of material entering into the construction of concrete, I have no doubt that I have personally put concrete at a lower price than $2.85 a cubic yard.

Q. You say you "have no doubt." Are you willing to swear that
you have actual knowledge that you have put in concrete
3081 that low?

A. I would not be willing to swear that at the present time; my knowledge is so not positive that there could be no doubt of it, but I am pretty certain that I could refer to records of mine which would bear me out. $2.85 represents labor and incidental cost of 92 cents per cubic yard.

Q. You rely to some extent upon Baker's treatise in fixing these prices, don't you?

A. The prices named were fixed before I ran across this item in Baker's Masonry Construction. I merely put this in as corroborative testimony.

Q. You rely to some extent upon your own knowledge and investigations?

A. To a very considerable extent, sir.

Q. Do you rely to any extent upon information obtained locally?

A. Yes sir, I obtained by conversations with contractors and from statements made by other contractors to Mr. Nixon information which led me to feel that the prices I had placed upon concrete under the conditions existing at the river, were amply high.

Q. What contractors did you talk with here at Knoxville?

A. I talked with members of the Callahan Construction Company; also obtained information from T. W. Kellar, of which I have a record here. This letter is from Mr. Nixon to me, and is a record of what Mr. Keller had to say on the subject. Do you wish me to read it?

Q. No sir, I don't call for it. At what price did Mr. Kellar fix broken stone?

A. Mr. Keller fixed the present price of broken stone at about $1.00 delivered.

Q. And you fixed it at $.40 in 1901?

A. "Marble sprawls $1.00; delivered during dull times and when hauling is scarce are sold much less, perhaps $.60 or $.70
3082 delivered. Now worth $1.00 unless in large lots and special conditions."

Q. Now you fixed the price of broken stone at $.40 in 1901?

A. I fixed the price of stone from the debris of the excavation, broken by hand and stated in my previous evidence, what my conclusions were as to the cost.

Q. Now what do you say the cost in 1901 was for broken stone delivered under the conditions contemplated in Mr. Kellar's information to you?

Mr. PICKLE: I object to an examination of the letter unless it is called for.

Mr. CALDWELL: I never heard of anything like that This gentleman furnished information based on a letter.

Mr. PICKLE: Then I say that the letter should go in.

COMMISSIONER: I don't think that the cross examination goes to a point that necessitates the introduction of the letter at all. He says "what do you say is the value based upon some scheme in this letter"?

Q. Now what do you say the cost in 1901 was for broken stone delivered under the conditions contemplated in Mr. Kellar's information to you?

A. Sixty to seventy cents.

Q. Now look at the deposition of the city's witness, Mr. David

Getaz and see if he don't put the price of broken stone from 95 cents to $1.05?

A. On page 150 of his deposition or a typewritten statement said to be the deposition of David Getaz, I find this statement in answer to a question "Q. And what would be the broken stone cost? A. From 95 cents to $1.05; $1.05 would be the market price and then about 10 cents for water. $1.00 for labor is enough
3083 where there is a quantity of it."

Q. Please examine the deposition I hand you, and put the sheet I handed you in the proper place and say whether or not it is the deposition of David Getaz?

A. I am satisfied that that is the deposition of Mr. Getaz.

Q. In this concrete item you have 1116 yards and Messrs. Wheeler and Kimball 730 yards. Did you substitute concrete for brick work and make the difference in that way?

A. I substituted concrete for brick work in building foundations.

Q. So that your new construction contemplates a change of material in that respect?

A. Yes sir there is a change in that particular.

Q. When did concrete come into general use for purposes of this kind?

A. Concrete has been used for purposes of foundations for a number of years.

Q. About how many years?

A. Well I cannot say as to when my attention was first called to it; probably 10 years ago.

Q. Where did you substitute concrete for brick?

A. I substituted concrete for brick in the foundations for boiler room and engine house, in the retaining walls and coal chute.

Q. By "foundations" for the engine house, do you mean all below the operating floor?

A. Foundations for what is known as the old engine house were built below the operating floor of that part of the building. Those for that portion which is new construction are from the lower, or basement floor down.

3084 Q. Now please tell me just where you did put all this concrete amounting to 1116 yards?

A. Would you like all the items?

Q. Yes sir I would like all the items of it where you have substituted a new material for material used there, and I wish to know where you contemplate putting it?

A. Around the new pit; that is around the pit in which the present Deane engine stands from the rock to the basement floor, I estimated 419 cubic yards of concrete. In the pit bottom 18 yards. In the screen well and bottom 20 yards. Between the walls of the basement of the building that is above the basement floor and to the walk extending around the building a total of 68.4 yards. The retaining walls of the bank and scales and behind the boiler house 193½ yards. Foundation of the old engine and boiler house 201 yards. The old pit lining 117 yards. The coal chute 28 yards.

The old pit bottom 40 yards. Between the pits 12 yards. Total 1116.9 yards.

Q. You made another change didn't you, in concrete floors, by substituting concrete for brick pavement?

A. I am of the opinion that all the floors put in were concrete; I don't remember at the present time that in the present plant there are brick floors, although I may be mistaken.

Q. I wish you would look at page 63 of William Wheeler's deposition and see if it doesn't show 80 square yards of brick paved floor?

A. I find here on page 63 a statement "brick paved floor, bricks on edge in cement 80 square yards at $1.20, total $96.00.

Q. And you have substituted concrete for that?

A. Yes sir.

Q. You found 171000 or allowed 171640 brick in cement at the river station. Do you know how many Mr. Kimball and Mr.
3085 William Wheeler allowed in the same place?

A. I have a record here of 477250 brick in cement which however includes, I think, considerable construction and reconstruction. I notice here one item of chimney foundation 9750 brick which should not be included in reconstruction.

Q. What was it that last item amounted to?

A. 9750 brick.

Q. Then if Mr. Wheeler's estimate of brick in cement is approximately 465000 and yours is 171640, you have disposed of a very large quantity of those bricks in some way, and I presume have substituted concrete for them, is that a fact?

A. I think if proper allowance were made for the concrete substitutions, my total would come to about 430000 brick against 477250 brick.

Q. What would that make the extent of your concrete substitution?

A. Apparently about 258000 brick.

Q. Did you substitute any brick in lime for brick in cement?

A. I don't think any brick in lime were substituted for brick in cement. Brick in lime simply included the superstructure, the tool house, &c.

Q. Now when you come to the item of brick in lime at the river station you allowed 164400 brick in lime as against 140250 as we compute it as allowed by Mr. Wheeler?

A. I make that item of Mr. Wheeler's estimate 173200 brick in lime.

Q. You do not understand then that you have substituted anything in the place of any brick in lime?

A. No sir I do not recollect doing so.

Q. Have you reduced the quantities in the buildings at the pump station?

A. I don't recollect reducing any quantities. I simply took dimensions of the various parts of the building and computed
3086 the number of brick required, making my own determinations of dimensions from the plans and other data offered.

Q. From whom did you get your prices for brick laid in cement and for brick laid in lime?

A. We based our cost for such work on the testimony of Getaz and Munding as I recollect. I would not be certain on that point; on conversations and information obtained from local people and elsewhere, and from my own knowledge of the cost of such work.

Q. How much information did you get away from Knoxville?

A. I obtained a very considerable amount of information away from Knoxville—corroborative testimony as to the correctness of my deductions as to the cost of this work.

Q. Did you make your deductions before you got that information or afterwards?

A. It is my impression that the matter of the brick cost was one of the first things determined during my first visit at Knoxville, but in order to corroborate my own opinions and deductions from the evidence collected here, I made it a point to investigate after leaving Knoxville, and saw no reason to change the estimates made.

Q. Did you allow any vitrified brick at the pump station?

A. No sir it was simply replaced with common brick.

Q. Why did you replace vitrified brick with common brick?

A. Because it was my opinion that common brick were entirely suitable for the service.

Q. Now as I recall, you have made the following changes at the pump station for your proposed replaced plant; you have changed the engine pits; you have changed foundations in part at least from brick to cement, substituted concrete for brick flooring, have substituted to a large extent concrete for brick laid in cement, and have substituted common brick for vitrified brick. Are there any
3087 other changes that you can recall that your replaced pump station plan calls for?

A. I don't think of any more just at present.

Q. From whom did you get your prices for lumber?

A. My impression is those prices were taken from the depositions of Messrs. Getaz and Munding.

Q. Did you adopt their prices without any change?

A. I think in genral we did, yes sir.

Q. You found a less quantity of it than Mr. Wheeler, didn't you

A. I don't recollect that we found any less quantity as far as the reconstruction is concerned.

Q. Did you get your prices for carpenter work, hardware and nails from Getaz and Munding?

A. My recollection is that we adopted their estimates in that respect; perhaps in some cases those of Mr. Wheeler.

Q. Did you adopt the estimates of Getaz and Munding for oiling, painting, slate roofing, guttering and flashing?

A. As I recollect we did.

Q. Did you get your quantities and prices for doors, windows and frames from Getaz and Munding?

A. That is my recollection sir.

Q. Did you get from them also your prices for window and door sills?

A. Yes sir.

Q. From whom did you get your prices and quantities for the stairs and railing at the river station and for the lavatory at the river station?

A. I think from the same witnesses.

Q. Did you personally inspect the plumbing, heating and lighting arrangements at the pump station?

A. Yes sir.

Q. What did you find?

A. We allowed $150.00 for this work.

Q. For what items?

A. For the plumbing, heating and lighting.

3088 Q. But what are the items that make up plumbing, heating and lighting, and give the prices of each item if you please?

A. I don't think that I have that matter here, Mr. Caldwell.

Q. Did you adopt the statements of Getaz and Munding as to felt roofing on the tool house, macadam and spreading and sodding and seeding?

A. We adopted their felt roofing estimate, the macadam sodding and seeding.

Q. How did you get your quantity of rock excavation of 233 yards at the Intake tower?

A. I went very carefully over the various and sundry records of surveys made over that section of ground covered by the Intake tower, the 24 inch Intake pipe and the ground occupied by the building and made a plan of my own covering this portion of the pumping station property. I then made profiles across the location of the Intake tower and determined from these the amount of rock excavation and earth excavation as nearly as was possible from these data.

Q. You say you made a plan of your own that was different from the plan upon which the present Intake tower is constructed

A. Yes sir.

Q. Have you got that plan?

A. I think I have it, yes sir, not here however.

Q. Can you file that plan as a part of this record and make it Exhibit "A" to your deposition?

A. I shall be very glad to do so.

Q. How many "I" beams are in the present Intake tower?

A. I find in my record of this portion of the work 56 feet of 6 inch "I" beams and 22 feet of 5 inch "I" beams.

Q. Do you allow the same in your own plan?

A. I think you are laboring under a misapprehension Mr.

3089 Caldwell. I made no new plan of the Intake tower.

Q. Well do you allow the same amount of "I" beams in your replacement cost?

A. Yes sir.

Q. Did you allow the same prices that Mr. Wheeler set upon them?

A. I see in this deposition an item "iron 'I' beams, timbering and flooring of tower complete, $90.00." I have allowed for "I" beams and flooring of the tower $47.89.

Q. Does that cover the same items and amounts of each item covered by Mr. Wheeler's $90.00 estimate?

A. I don't know what quantities this item of Mr. Wheeler's of $90.00 covers. There is no statement as to the details.

Q. You have said that you find certain quantities of "I" beams. Does your estimate of "I" beams cover merely those quantities of iron or does it cover some of the wood work in addition?

A. This estimate of mine covers both the wood work and the steel or iron construction.

Q. How much do you allow for the "I" beams; I mean what is your unit price?

A. I hav-n't calculated the unit price. My total amount is $30.44.

Q. As you find it actually in the tower?

A. As I find it from the plans; I took those quantities from the plans as I recollect and took no measurements from the tower itself direct.

Q. What kind of "I" beams do you contemplate in your replaced power, steel or cast iron?

A. These are steel "I" beams.

Q. What would be the weight of the amount that you allow there?

A. My impression is that I took the weight shown on the plans which would be for the 6 inch, 12¼ pounds per lineal foot and for the 5 inch I can give no weight at the present time as my
3090 record is not complete.

Q. Under the head of bridge in Intake tower, what do you include? Perhaps I can aid you by adding under the head of bridge in Intake tower, do you include the railing and cost of erecting it?

A. I find that I have an item of $150.50 for the Intake tower bridge. I don't find any items of railing connected with this bridge and it is my impression that there is no railing on the bridge, if I recollect the plans. I have a sketch here showing the dimensions of the bridge from which I made my estimate. This is not a deck bridge and would not requir- railing.

Q. Well now do you allow anything for railing anywhere about that tower in your replacement estimate?

A. I find on my estimate of the Intake tower equipment an item of $64.10 for railings.

Q. But where did you put that in your replacement estimate?

A. My replacement estimate shows that I first charged that to Intake tower equipment apparently, and then eraced it intending to put it in under the head—of railings evidently and it was inadvertantly omitted, but the estimate was made at $64.10; however it is my impression that that estimate is for the bridge or railing as outlined on the plans for the tower. I think that the railing outlined on the plans was not the railing put in place and that the railing that is there does not contain so much material as what I have outlined; however I have estimated that railing at $64.10.

Q. Then whatever the cost of that railing might be, should be added to your replacement account?

A. I should be very willing to have that amount added to the cost of replacement account and think it should properly be done.

3091 Q. What do you include under the head of gates in your Intake tower estimate?

A. I have here the gates and operating devices $1382.00.

Q. Well now what do you include under the term "operating devices"?

A. That is the gates with their operating rods, hand wheels &c.

Q. Do you allow anything for gratings and port holes?

A. I allow for gratings $72.00 and for screens $25.00, total $97.00. I would call your attention to the fact that these prices are simply contractor's costs and should all have 17% added for contractor's profits and contingent expenses.

Q. Where did you get your prices for the gates, Mr. Brown?

A. As I recollect the prices for these gates were determined after a conference with a firm of contractors, but was based not on a rectagular gate as shown, but on circular gates.

Q. Do I understand that your plan substitutes circular gates for the present gates?

A. Not necessarily a substitution, but it was estimated that the cost that was shown would approximate with a fair cost of the rectangular gates.

Q. Who was the firm that gave you your prices of gates?

A. The T. J. Mooney Company of Nashville.

Q. Did you ever see these gates?

A. I have seen the gates at the Intake tower and looked them over carefully, as carefully as could be done under the conditions.

Q. Are they like the ordinary gates?

A. No sir they are a special restangular gate.

Q. Did you ever see any like them anywhere else?

3092 A. I have seen catalogue cuts of them but I have never seen any gates of the same sort.

Q. The contractors of Nashville of course had never seen them?

A. No sir not to my knowledge.

Q. You allow $145.92 for a 24 inch pipe in the Intake tower. Please read me the items that make up that amount of $145.92?

A. This item of $145.92 consists of 44½ feet of 24 inch pipe, and 1, 24 inch 45 degree bend, the cost of the pipe being $117.92 and of the bend $28.00. This cost does not include any cost of excavation of any sort, the excavation for earth and rock being included in earth and rock excavation.

Q. Do you allow anything for laying that pipe?

A. The pipe laid is figured at $2.65 per foot including the cost of laying. The pipe itself costs about approximately $2.00 a foot, leaving 65 cents for labor and materials and laying per foot.

Q. Your estimate of $145.92 includes the cost of laying?

A. It includes the cost of laying the pipe.

Q. Now didn't you find a 24 inch flanged connection there that you have omitted?

A. The 42½ feet of pipe includes one 2 foot length of 24 inch pipe, which if I recollect is flanged.

Q. What did you connect with at the screen well?

A. My recollection a 24 inch sliding gate.

Q. Don't you know that there is there a 5 foot 24 inch flanged connection?

A. The 2 foot 24 inch connection which I mentioned in my previous answer is at the end where connection is made with the tower; there is a connection at the Intake or screen well end which I have 6½ feet long.

Q. Well have you allowed for that anywhere in your replacement estimate?

3093 A. That is included in that 42½ feet of pipe. It gives three lengths of 12 feet each, or 36 feet, and one length of 6½ feet making 42½ feet.

Q. How did you obtain that length of 42½ feet?

A. By scaling from the plans as I recollect.

Q. If there is a special piece of pipe there of 24 inch flange connection, you have failed to make not- of it, hav-n't you?

A. It is my impression that I have not neglected to account for any special flanged connection on that length of pipe as shown by the plans. Changes may have been made in the actual construction of the pipe which I am not acquainted with.

Q. Referring to your estimate of the 24 inch intake, where was the earth excavation that you allow for, made?

A. I have an item of earth excavation here, 313 cubic yards. That was the excavation required according to my estimates from the profiles and data of grades obtained from the records here, for the trench in which the 24 inch Intake pipe was laid.

Q. Where was that trench located?

A. It runs out from the screen well pointing slightly down stream —runs out into the stream approximately 100 feet.

Q. That earth excavation then was made inside the coffer-dam was it?

A. It was made inside the coffer-dam.

Q. Do you think 30 cents a cubic yard a fair price for such inside a coffer-dam?

A. That was my estimate at that time and it still is.

Q. Where did you get your information on that point?

A. That was simply an estimate based by me on my judgment of the character of the work and the difficulties attending it.

Q. What did you base your judgment on?

A. I think my former answer covers that, Mr. Caldwell.

3094 Q. Did you ever do any work of that kind or have it done?

A. I never did any work inside a coffer-dam. I have had excavation done where the ground was wet—some loose rock, &c. in the material.

Q. Did you make any inquiries about that item?

A. I don't remember that I did inquire about that item sir. I think my item is something like 230 yards in excess of that estimate made by Mr. Wheeler for the amount of this work. It was my judgment however, that the material was there from the best of my knowl-

edge and belief obtained from the records and I therefore placed that as the quantity. The price I think is fair for that sort of work.

Q. But Mr. Brown, you don't know anything about that kind of work, do you?

A. Yes sir.

Q. Your knowledge is purely theoretical, isn't it?

A. No sir my knowledge is based on a variety of experiences in work of similar character.

Q. Hav-n't you just admitted that you had never done any work inside a coffer-dam?

A. The matter of the coffer-dam being there doesn't change the quality of the work one bit.

Q. You think not?

A. No sir.

Q. You never seen this one did you?

A. No sir.

Q. And you have never seen work done in coffer-dams?

A. Yes sir I have.

Q. And you are positive that your judgment on this point is correct?

A. I am positive that my judgment is reasonably correct.

Q. Have you the same degree of confidence in your price of $1.50 for rock excavation in the coffer-dam?

A. I have just the same degree of confidence in the reasonableness of all the prices which I have attached to this work. I have
3095 gone over it with great care and obtained as much data as was possible for me to do on the work, and I am ready to defend my estimates. I however, shall be very glad to change them when it can be shown to me without any doubt that I am wrong.

Q. Yes I hope you won't think me as believing you would doubt your own estimates. What I want to know is the source you get your information that $1.50 is a fair estimate for rock excavation in a coffer-dam under water?

A. If the excavation was done under water, there would be no need for the coffer-dam. The coffer-dam is put there for the purpose of excluding the water and the water is pumped out so that the trench is reasonably dry.

Q. Does your experience with coffer-dams lead you to believe that it is possible to do blasting without letting the water in?

A. It is possible, and it is commonly practiced as every engineer knows.

Q. But you are not an engineer of experience in coffer-dams, as I understand you?

A. I am an engineer of experience and I realize and am familiar with the conditions of such work.

Q. Don't you think you are an engineer more of theory than of experience, Mr. Brown?

A. That is usually the charge that is made against a man that is a teacher. I however was raised on the practical side of the business and have continued practice in engineering work since I began teaching.

Q. You certainly will admit that you are only an engineer of theory in regard to excavation in coffer-dams, won't you?

A. No sir.

Q. You are of that opinion despite the admitted fact that you have never done or supervised the doing of excavation in
3096 coffer-dams?

A. Yes sir, because I know what such work is, and my estimate on such excavation would be reasonably correct

Q. Did you ask for any information as to the proper cost of rock excavation in cofferdams or is your conclusion entirely the product of your own abilities?

A. I don't recollect at the present time of having a conference with anyone regarding the excavation of rock in coffer-dams excepting possibly Mr. Kimball, but I am satisfied that I appreciate the conditions which exist in the excavation of rock in a coffer-dam and that my judgment based on my knowledge is reasonably correct. I would also call your attention that in addition to this $1.50 which represents contractor's costs there is, I think, 17% to be added to this work making a total of $1.75½ for excavation per cubic yard of rock, and I will state to you that in my opinion for that price that rock could have been picked and gadded out without any recourse to blasting whatsoever, and yet I do insist that blasting is commonly practiced in coffer-dams and that it can be done without difficulty.

Q. Yes Professor, I wasn't asking for your opinion but for the sources of your information. You have under your heading of 24 inch intake an item of pumping $30.00. What do you include under that item?

A. That item is my estimate of the reasonable cost of pumping, there being expected that on work of the character of building a power station of this magnitude, with the amount of rock excavation, &c., that the contractor would be provided with a portable engine and boiler which he would use for other work, and which could be used for supplying steam for pumping purposes. My opinion is that 50 cents a day for 60 days' pumping would be ample for that purpose.

3097 Q. In the matter of the Intake tower testified about awhile ago, you have a similar item of $30.00 for pumping. That $30.00 also is allowed for 60 days' pumping, isn't it?

A. Yes sir.

Q. In making this estimate of $30.00 for pumping, did you expect the contractor to own his own pumping engine?

A. He would own some sort of pumping engine for purposes of drainage.

Q. He would have to have someone to run the engine, wouldn't he?

A. Yes sir.

Q. What would you allow him to pay that man a day for running the engine; what proportion of the 25 cents you allow?

A. The contractor would doubtless use this engine, or this boiler for other purposes, such as hoisting, &c., and the man who operated

it would possibly be a man that was paid $1.00 or $1.50 a day, and he would not only attend to the firing of the boilers, the pump taking care of itself, but would probably attend to other business. That is the common practice in work of that character.

Q. Can a man run a pump and hoisting engine at the same time and do the firing also?

A. The pump for the drainage of work of this sort usually requires very little care or attention, so that the man attending to this service would be able to operate a hoisting engine and fire his boiler without difficulty.

Q. Don't you find two 24 inch flanged connections, one of which should be under the head of Intake tower and the other under the head of the 24 inch Intake?

A. I think I have explained in a previous statement about the flanged connections on the Intake tower and Intake pipe. I find in my notes here I allowed a 5 foot flange and Bell connection on the 24 inch Intake.

3098 Q. At what price?

A. $37.50.

Q. Now how much did you allow for the similar pipe in the other case?

A. The other case on the Intake tower pipe is a 6½ foot flange and Bell connection, if my memory serves me. My records are incomplete on that. That I evidently figured in as straight pipe at $2.65 per foot. Probably that should have gone in as a special casting at 3¾ cents per pound in place.

Q. If it is 6 foot long it would cost something over $40.00 wouldn't it?

A. I would have to figure that up. There would be a rebate on it of 6½ feet at $2.65 per foot or about $15.00 or $16.00, so that there might have been a difference of possibly $20.00 to $25.00 between what I did actually allow and what I should have allowed on that piece.

Q. You have set a Pulsometer pump in your screen well equipment, but I see no evidences that you have allowed anything for setting it or for the piping and hanging of it?

A. I will state that this Pulsometer pump is not now in use, and as I understand it was used simply for the pumping out of the coffer-dams and perhaps temporarily for cleaning out the screen well; that the price allowed of $175.00 on this pump not only is sufficient to pay for the pump but to pay for considerable piping. I would state that this pump is listed at $175.00 which is the amount allowed for a Pulsometer—that there is a discount——

Mr. CALDWELL: I object to that. I only want the witness to answer my question.

A. I have allowed the discount on the pump which amounts from 20% to 25% as sufficient to cover all piping necessary for such temporary work.

3099 Q. Now my question covered specifically three items; have you allowed anything for setting, hanging and piping and I

call your attention to the fact that you have not yet answered the question?

A. It seems to me Mr. Caldwell that that answers your question fully.

Q. I cannot see that it does and I will ask you to say "yes" or "no" to a plain simple question?

A. I am willing to answer "yes" or "no" when I do not feel it necessary to qualify my answer, but when it is desirable to qualify my answer I desire the privilege to do so.

Q. Well perhaps the court will instruct you as to what course to pursue?

COMMISSIONER: Then I will have to decide the question for myself. Mr. stenographer read the last portion of the witnesses answer?

(Stenographer reading:) "I have allowed the discount on the pump which amounts from 20% to 25% as sufficient to cover all piping necessary for such temporary work——"

COMMISSIONER: Now Mr. Brown, couldn't you add to that sentence "such as hanging, setting, piping &c." which would seem to answer the question?

A. Yes sir "such as hanging, setting, piping &c."

Q. Did you find any drainage pipes and gates in the screen well equipment?

A. I have an item here of three inch suction pipe to pump pit $30.00.

Q. If you will turn to page 46 of Wm. Wheeler's deposition you will find an item of drainage pipes, gates &c., $125.00 of which I see no traces in your replacement estimate, and I ask you
3100 to say whether it is or is not a fact that you have omitted that $125.00 item from your replacement estimate?

A. I have allowed the sum of $55.00 for this item.

Q. Now turn to page 79 of Mr. Wm. Wheeler's deposition and see what you have allowed for the item "84 feet of 6 inch pipe" the value fixed on the item being $70.00, and isn't that the item for which you allowed the $55.00?

A. I think I would modify my answer to the previous question by stating that my item of $55.00 doubtless refers to the same item as that of Mr. Wheeler on page 79 of his deposition amounting to $70.00, that being the flush-out for screen well, and that apparently the item of $125.00 on page 46 of his deposition has been omitted in part. Doubtless the item of $30.00 for 3 inch section pipe to pump pit refers to a portion of the item of $125.00 of his deposition page 46.

Q. Now please look to page 75 of Wm. Wheeler's deposition and see if you are not mistaken in your last statement?

A. I find on page 75 of Mr. Wheeler's deposition "item G (subsection (*i*) 3 inch section pipe from screen well to pump pit, labor and materials, $50.00."

Q. Now isn't that the item covered by you?

A. That is doubtless the item covered by my item of $30.00.

Q. Then Professor isn't it a fact that there is no part of the $125.00 item that is in your replacement account?

A. I think that is true, yes sir.

The further taking of this deposition was adjourned until Wednesday afternoon, December 16, 1903, — 3:00 o'clock p. m.

3101 WEDNESDAY, *December* 16, 1903—3:00 o'clock p. m.

The further cross-examination of C. S. BROWN continued:

Q. Mr. Brown in replacing the pumping machinery, do I understand that you propose to use two Worthington engines?

A. That was the plan proposed.

Q. And that they shall cost $9000.00 each?

A. $9000.00 each was the price set upon these engines plus 5% contractor's profits, or $9450.00 f. o. b. Knoxville.

Q. How did you get your prices on those engines?

A. I had a conversation and a letter from the Heron-Brady Pump and Foundry Company of Chattanooga regarding the value of such pumps. I also had some correspondence with Stilwell-Bierce, Smith, Vaile and Company regarding similar pumps. I have corroborated my estimate by information obtained of the cost of a similar pump erected at the same time at another point—that is contracted for on March 30th, 1901—so that I am confident that the prices set upon these pumps is reasonable.

Q. Did you submit any drawings or specifications to the persons from whom you secured the prices?

A. Only specifications describing the pump and its appurtenances.

Q. Have you a copy of those specifications?

A. I don't know that I have.

Q. Were they in writing?

A. Yes, sir, I wrote a letter.

Q. I wish you would produce and file that letter?

A. I regret to say that I did not retain a copy of that letter.

Q. Have you got the answer to it?

A. Yes, sir.

Q. Can you produce and file that?

A. I think I can.

Q. Were there any drawings prepared and submitted to
3102 these people?

A. None whatever. A description of the pump is sufficient for any pump manufacturer.

Q. I didn't ask you that. I simply asked you if you had submitted any drawings?

A. I feel that I desire to qualify my answer by stating the reason why I did not furnish drawings. It would be entirely unnecessary.

Q. I suppose if you were buying for yourself you wouldn't submit any drawings or specifications?

A. I might submit specifications but no drawings.

Q. You never bought any for actual use?

A. No large pump engines. Drawings of such pumps are usually furnished by the bidder.

Q. Well, were they furnished you in this instance?
A. No, sir, I think not.
Q. What duty did you tell these gentlemen that this engine was desired to perform?
A. I didn't specify the duty; I requested them to state the duty.
Q. What did they say it was?
A. My impression, it was ninety million foot pounds per thousand pounds of steam.
Q. For a four and a half million gallon pumping engine?
A. For a pumping engine of the size of steam cylinders and water cylinders of the Worthington engine.
Q. You mean the Worthington engine generally or some particular Worthington engine?
A. The Worthington engine as at present installed in the plant of the Knoxville Water Company.
Q. Well, what is the capacity of the Worthington engine at present installed by the water company?
3103 A. Approximately four and a half millions of gallons in 24 hours based, I think, on a piston speed of 100 feet per minute. It may be I calculated this on a basis of 120 feet per minute, but I am not certain on that point.
Q. Did you inform yourself of the capacity of the present Worthington engine?
A. I did.
Q. In what way?
A. By an examination of the plans, also by inspection of the engine itself.
Q. And you are positive in your judgment that its capacity is approximately four and a half million gallons daily?
A. That is my recollection of the capacity which I computed.
Q. Then does your replacement contemplate the installation of two engines like the present Worthington engine?
A. Yes, sir.
Q. You don't know whether or not the present Worthington engine has a capacity of six million gallons, do you?
A. Not on the basis on which my calculation was made, if my memory serves me.
Q. I am asking you if you have knowledge of the fact one way or the other?
A. My inquiries were not based on a pump of four and a half millions capacity. I based my inquiries upon the size of a pump having the same size steam cylinders and water cylinders as testified to in Mr. Wheeler's deposition.
Q. What speed did you specify to be attained by your new pumps?
A. I specified no speed, that being determined by common practice in work of this character.
Q. What did you specify?
A. I specified, as I have heretofore stated, the size of steam cylinders, the size of water plungers and stroke, the water and steam pressure, suction left and various appurtenances with which the pump is fitted.

3104 Q. Have you the letter answering your inquiry, present in court this afternoon?

A. No, sir, it is not in my files at present.

Q. Your replacement statement in regard to these engines is two Triple expansion pump engines similar to present Worthington equipment, four and a half million gallons capacity each per 24 hours. Now did you specify in writing to the company that they were to be of the capacity of four and a half million gallons?

A. I think not although I will not be positive on this point. The size of plungers specified determined the capacity.

Q. And you cannot recall or don't know what the capacity of the present Worthington engine is?

A. The piston displacement of this pump would be approximately 4,700,000 gallons in 24 hours on a basis of 100 feet per minute piston speed.

Q. Did you calculate on 100 foot per minute piston speed?

A. That is what I made my calculation on.

Q. I thought you said it was 100 or 120; now which was it 100 or 120 feet per minute?

A. 100 feet per minute I think.

Q. That is a very low rate of speed isn't it?

A. That is the standard rate of speed for pumps of that character. Possibly some pump manufacturers will over-rate their pumps by stating their pump capacity is so many million gallons every 24 hours, but not stating what the piston speed is on which this capacity was calculated.

Q. Now you have been asked to file the letter answering your inquiries about these engines; can you obtain a copy of your letter of inquiry and file that also?

A. I will endeavor to.

3105 Q. In stating the size of boilers for your replacement, is your statement of the length of the boiler according to the tubes or according to the shell of the boiler?

A. Boilers are ordinarily rated according to the length of the tube, and I used this method of rating the boiler in my replacement estimate.

Q. Then your boilers are really of the same size as given by Mr. Wm. Wheeler, to-wit: 66 feet by 19 feet 4 inches, he taking the shell of the boilers and you the length of the tubes?

A. Yes, sir, that is so according to my recollection.

Q. In your estimate of boilers you have an item of $209.00 for a boiler feed pump. Does that include anything except the pump itself. Well, yes, I see you add steam and water connections; do you include anything except the pump and steam and water connections in that item of $209.00?

A. This item of $209.00 includes the feed pump, steam and water connections, feed connections and boiler blow-offs according to my notes here.

Q. How many of those feed pumps are there at the river station?

A. There is one feed pump of this character; there is another

pump—a jacket pump for the Deane pumping engine—which is used in times of emergency for a relay.

Q. Do you allow anything for that?

A. I did not. In replacing the Deane pump with a Worthington, this item was not figured in.

Q. How much steam were your boilers designed to carry?

A. The two 66 ft. by 16 ft. boilers were butt-strapped riveted, and would carry safely a pressure of 125 pounds. The other two boilers of 54 by 16 ft. are double riveted and on account of their being less in diameter, would carry probably the same pressure safely.

Q. If it were a fact that the two larger boilers over there were built and are insured to carry 150 pounds of steam, would
3106 that make any difference in your estimate?

A. I should have to make a calculation to determine if these boilers as planned would carry safely a pressure of 150 pounds. I am inclined to think that they would, but would not make a definite statement to that effect.

Q. Would the fact that they were built and insured to carry 150 pounds cause any difference in your estimate?

A. I am inclined to think not at the present time with such information as I have at hand, but would have to determine this by calculation.

Q. From whom did you get your prices for earth excavation up at the filter house?

A. That price set of the cost of excavation per cubic yard at the filter station was based on my own estimate from my own knowledge of the value of such work; also from the fact that the actual cost of this work was 12½ cents per cubic yard as shown by the books of the company according to Mr. Nixon. I beg your pardon, not the actual cost of this excavation, but the actual cost of similar excavation in the reservoir.

Q. In building your new foundations at the filter house, you substituted concrete for brick pretty largely, didn't you?

A. Yes sir.

Q. How do you make up your allowance of 652.9 yards of cement floors at the filter station?

A. 483 yards in the filter house and under the filters, 73 yards in the pump room floor, 48½ yards in the boiler room floor and 48.4 yards in the coal shed; total 652.9 yards.

Q. Why do you allow nothing for cement floor in the settling basin?

A. Cement floor in the settling basin was estimated as
3107 a part of the settling basin concrete.

Q. And that appears later in your estimate?

A. Yes sir.

Q. The same is true of the floor in the settling basin extension?

A. The same is true of that material.

Q. At the pump station you allow concrete floors at 75 cents a yard. At how much do you allow them at the filter station?

A. The price allowed for cement floors at the pump station was 75 cents as contractor's costs plus 12% profit or a cost of 84 cents per square yard. The cost of floors at the filter station ranges from 84

cents to $1.29, depending upon the character of the material used and the thickness.

Q. Now what is it at the filter station without the percentages added?

A. Contractor's cost prices 75 cents and $1.15.

Q. Why should the floors at the filter station cost more in any instance than at the pump station?

A. The floor of the filter house, which included the material or floor beneath the filters, was figured at $1.15, contractor's cost price, on account of being a heavier floor than the floors in the other parts of the building.

Q. In saying that you put thicker floors under the filter, do you mean in your replacement estimate or in the actual filter plant now?

A. I notice that the filter plant is stated in my record of quantities taken from the deposition of Mr. Wheeler, as I remember, to contain 182 yards of 6 inch floor and 415 yards under the filters. My quantities were 483 yards for the filter house floor.

Q. That 6 inch flooring is in the settling basin isn't it. I refer you to page 54 of Mr. Wheeler's deposition?

A. I find on page 54 of Mr. Wheeler's deposition the item
3108 "Portland cement concrete floor, 6 inches, 182 square yards at $2.00 a yard" amounting to $354.00.

Q. That is the only 6 inch floor that appears, isn't it?

A. That is the only 6 inch floor that I have any record of.

Q. In the matter of brick in cement at the filter station, you have substituted a large quantity of concrete for brick and cement, hav-n't you?

A. Yes sir.

Q. As you appear to increase the quantity of brick in lime at the filter station, I wish to know if you have substituted brick in Lime for brick in cement to a considerable extent?

A. I think no brick in lime was substituted for brick in cement in any case.

Q. How many brick in lime does Mr. Wheeler estimate at the filter station. You will find that on page 50 of his deposition?

A. I find at the bottom of page 50 of Mr. Wheeler's deposition the item "section (*b*) above ground line or gr. 243. 62,000 common brick laid in lime mortar at $13.00, total $806."

Q. Now you find 81300 brick in lime. How do you get that number?

A. My record shows a total of 152,000 brick in lime at the filter station of which 70,700 were charged as vitrified brick, leaving a balance of common brick of 81,300.

Q. Please see if Mr. Wm. Wheeler does not estimate as follows on page 44; "51,000 vitrified brick in Portland cement at the filter station"?

A. On page 44 of Wm. Wheeler's deposition I find under section (*a*) 51,000 vitrified brick in Portland cement (around settling basin) or gr. 243 at $25.00, total $1275.00."

Q. Now look at page 51 of Mr. Wheeler's deposition and see if you don't find 90,000 bricks in lime and 46,000 bricks in Portland cement?

A. Yes sir.

Q. That makes 187,000?

3109 A. Those are in the settling basins.

Q. Now if you allow 70,700 vitrified brick and 81,300 common brick in lime it leaves still 35,000 brick according to Mr. Wheeler's estimate to be disposed of either as common brick or as vitrified brick, and what disposition have you made of them, if any?

A. I would say that the settling basins were estimated as of concrete throughout, and that probably this item appears as concrete.

Q. The whole three items of Mr. Wheeler's vitrified brick estimate amounting to 187,000 brick?

A. I presume that is so, as I checked up the relative amounts of brick shown by Mr. Wheeler's estimate and my own on a basis of brick for all parts shown by him as brick, and my estimate was several thousand in excess of his estimate.

Q. Well then if you replace the whole 187,000 vitrified brick with concrete, where do you get your 70,700 vitrified brick?

A. The 70,700 vitrified brick were used for the facing of the walls of the building, as that building is now faced with vitrified brick.

Q. Well where do you get your 81,300 brick in lime; where do you use them I mean?

A. That is for the superstructure; the facing of the walls is vitrified brick.

Q. Then you have in the superstructure 81,300 bricks in lime for facing the walls 70,700 vitrified brick and a space occupied in the present construction about 187,000 vitrified brick is now filled by an equivalent quantity of concrete?

A. That would be my presumption without checking the matter up.

Q. Now in the matter of lumber and wood floors. What prices for lumber did you allow?

A. The prices of Getaz and Munding.

3110 Q. Did you look at the timbers to ascertain their lengths and sizes?

A. I examined the plans and took some measurements from the plans, but finally concluded that it would be undesirable to go into an extended investigation of the matter of cost of such material on my own account.

Q. What would you say lumber made up of Georgia heart pine, sizes 8 x 8 by 59 feet long would be worth a thousand?

A. Do you refer to a solid stick 59 feet long and 8 x 8 inches?

Q. Yes sir?

A. It would be in my opinion, without having investigated the matter of the cost of such material sufficiently to be certain of its correctness, that such material would be worth possibly $35.00 a thousand.

Q. In estimating carpenter work, can you establish any ratio between the cost of the lumber and the cost of the work?

A. It is common practice among carpenter contractors to estimate the cost of the labor necessary to perform certain kinds of work upon

the cost of the material. Sometimes it is stated at so many dollars per thousand feet, and a carpenter who is experienced can come very close to the actual cost of work on a basis of so many dollars per thousand for carpenter work. It would vary very widely, depending upon the character of the work and the character of the material. There could be no absolutely definite basis between the cost of the labor and the cost of material, but experienced contractors know very closely the relation between the square feet of the material and the cost of labor, and can easily convert that of course to the cost of labor per dollar's worth of material, if they so desire.

Q. Isn't about two-thirds the cost of the lumber a fair allowance for carpenter work under ordinary conditions?

A. Two-thirds of the cost of the lumber?

3111 Q. Yes sir?

A. That would be a question depending very largely upon what is meant by "ordinary conditions." It would differ very considerably in house building from mill building or stable building or power station construction.

Q. Well suppose you direct your answer to condition prevailing in building the roof and trusses of the filter plant?

A. It would be my personal opinion, without having investigated that matter, that such work could have been done easily for $15.00 a thousand.

Q. In the matter of fire protection at the filter station, do you make any allowance for hose, nozzles and pipes?

A. I have allowed in the matter of fire protection $200.00.

Q. I asked you if you made any allowance for hose, nozzles and pipes?

A. I do not find the statement in my records here as to what that allowance was. That was included in the $200.00. I shall be glad, if necessary to look that up.

Q. When the cement floors at the filter station were being considered, you stated that the two items, the first amounting to 182 yards and being in the settling basin, and the second amounting to 98¾ yards being also in the settling basin were accounted for under the head of settling basin. Those two items make 280 yards. Now do you include those 280 years in the 424.7 yards of concrete which I understood you above to assign to the settling basin?

A. I included all portions of the concrete work, including floors of the settling basins, in the settling basin construction, which consists of concrete.

Adjourned until Thursday morning December 17th, 1903, at 9:00 o'clock A. M.

3112 THURSDAY MORNING,
December 17th, 1903—9:00 o'clock a. m.

The further cross-examination of C. S. BROWN resumed:

Q. Mr. Brown in the matter of drainage and settling basin connections, did you allow all of Mr. Wm. Wheeler's items?

A. I endeavored to do so; that is, my own quantities were taken in every case where practicable and my own prices attached.

Q. It was your purpose then, as I understand to take his estimates and affix your prices upon all of them under this head?

A. It was my purpose to collect every possible item and affix a fair price upon the same.

Q. There are among these items 250 feet of 8 inch sewer and another of 580 feet of 8 inch sewer. What depth of ditches did you allow for those sewers?

A. I do not find my data as to the exact depth of these sewers. The 250 feet of 8 inch pipe which you mention is according to my recollection, on the property of the water company at the filter plant and has several man-holes upon it. The depth of trench for this pipe was determined from the depths indicated by the man-holes and the price set accordingly. There was practically no data obtainable as to the depth of the 530 feet instead of 580 feet of 8 inch pipe, which is said to have been put in the street by the water company in order to connect with the City sewer. This pipe was estimated at the same rate as the pipe on the grounds of the water company. The depth of trench might have been greater or less within a reasonable amount than the depth of the trench for the 250 feet of pipe on the property, without making it necessary to make a change in the rate per unit length allowed.

Q. What do you allow a foot for that sewer pipe?

A. Twenty-three cents.

3113 Q. Is that for the pipe laid?

A. That is for the pipe laid, including the trench.

Q. Didn't you find by measurement a depth of 10 feet at one of the man-holes where you measured?

A. I couldn't say without reference to the plans.

Q. Did your estimate here contemplate a depth of 10 feet at any point?

A. I will not say as to that.

Q. I would like for you to say because it is information I should like to have?

A. I should be glad to look on the plans, with your permission, and determine that. I want to state that the conditions wer fully considered in every respect, careful measurements were taken according to the plans, and the estimates made accordingly.

Q. At what depth can you lay 8 inch sewer pipe at 23 cents?

A. If the court will permit me I will go to my room at the Hotel and get my records containing this information.

Q. I am not asking you what you did in this case, but I am asking you the theoretical question; at what depth can you lay 8 inch sewer pipe for 23 cents, including the furnishings and everything else, and I am asking the question in order to get the benefit of the witnesse's opinion?

A. I have some records of estimates made by me on such work at the Hotel, which I would like to bring in (witness here retires for records, and after returning continued his cross examination.)

Q. Did you find it Professor?

A. Yes sir, 8 inch sewer pipe costs delivered f. o. b. 45 cents per foot less 80 per cent. or net 9 cents per foot. The weight per foot

is 24 pounds, which at a cartage cost of 40 cents a ton would
3114 cost for hauling 48/100 of a cent per foot. 500 feet of 8 inch sewer pipe ought to be laid in a day by a gang of men, costing $4.00, or the laying would cost 8/10 of a cent per foot. A sack of cement costing 60 cents, or a quarter of a barrel, will lay approximately 200 feet of 8 inch sewer pipe; the cost per foot will therefore be 3/10 of a cent. The total cost of materials will therefore amount to 10 58/100 cents or say 11 cents per foot——

Mr. CALDWELL: Professor, I am not asking about any of those things.

A. —that deducted from 23 cents, the price set for laying 8 inch sewer pipe would leave 12 cents per foot for the ditch. I determined by consultation with plumbers that a common days' work in this city is to put in 30 feet of ditch per day——

Mr. CALDWELL: If the court please, I object to this continued insertion into the record of matters that are not asked for by me.

COMMISSIONER: Professor can't you say how deep you can lay sewer pipe for 23 cents. If you say it cannot be answered that way then you can give it——

Mr. CALDWELL: Let the witness go ahead then and finish it in his own way.

A. As I stated, I determined by consultation with plumbers that a common day's work in this city is to put in 30 feet of ditch per day, including the excavation, the laying of a half inch to an inch water pipe and the covering of the ditch. I found also that Mr. M. F. Rourke formerly did contract work for the Knoxville Water Company——

Mr. CALDWELL: We object to that as incompetent and not responsive to the question.

Sustained.

3115 COMMISSIONER: Professor he simply wants to know how deep 23 cents will lay sewer pipe?

A. I find from my investigation of this question that for 23 cents per foot, which is contractor's cost, one foot of 8 inch sewer pipe can be laid, materials costing approximately 11 cents per foot, and that with the remainder of 12 cents approximately 9 to 10 feet of trench can be excavated.

Q. Now Professor, hasn't it been more than an hour for you to calculate how deep you could lay 8 inch sewer pipe for 23 cents?

A. I didn't take the time sir.

Q. Well don't you know that that has been about the time you have consumed in answering this question?

A. I suppose it has approximately. I had to hunt up my data on this subject.

Q. I understand your answer finally to be that the trench can be excavated 9 to 10 feet deep at the price you have stated?

A. Yes sir.

Q. And it can be refilled and the streets finished up without extra cost?

A. Including back filling; but nothing more than the ordinary restoration of surfaces in the street. If restoring of macadam is necessary an allowance of one cent per lineal foot should be made which would cut down the depth of trench permissible in the street to probably 7 to 8 feet.

Q. Mr. Brown, in the matter of the cost of the Lonsdale standpipe, you allow as cost of the steel 3-44/100 cents a pound, the estimate being based upon the steel erected. How much of that price of 3-44/100 cents is for the steel itself?

A. The price was made on the steel at the factory of $2.15 per 100 pounds.

Q. What method do you adopt in erecting a standpipe of that kind?

A. Do you mean what is the ordinary field method of construction?

3116 Q. I mean rather what method do you contemplate in erecting it for your replacement plan—the process of erection?

A. The first step in the erection of a standpipe, after the construction of the foundations, is to properly bed the plate of the bottom of the pipe, then sheets of the sides are erected piece by piece and riveted to the bottom—riveted together at the vertical joints, and as the height of the pipe increases, a hanging platform is usually attached to the pipe and the sheets above it erected from that. This process is continued until the top of the pipe is reached, the joints being riveted as the work progresses.

Q. What do you calculate the cost of labor per pound of steel in this process of erection?

A. The cost of erection of a standpipe of that character would approximate $5.00 per thousand pounds, or one-half cent a pound.

Q. I believe you have said already that you have had no personal experience in building earth reservoirs?

A. I have never constructed personally an earth reservior of any considerable magnitude. I have however been familiar with the methods of construction, and have watched the various processes of construction on several different occasions.

Q. In the matter of the standpipe at the filter station, is your estimate upon the same items that are set out in Mr. Wm. Wheeler's analysis, or have you rejected any of those items?

A. I don't remember how closely the items of Mr. Wheeler's estimate were followed. The estimate was made and based on the standpipe as it existed March 31, 1901, but it has been changed somewhat since then and elevated by placing under it a brick tower.

3117 Q. So far as you know then you have not rejected any items used by Mr. Wheeler applicable to the standpipe up to the date of March 31, 1901. I am not asking as to prices, but simply as to the items?

A. I think no item of material consequence was omitted. The vitrified brick stated to be in the base at that time were replaced by common brick.

Q. What are the dimensions of the two 50 horse power boilers

that you used in replacement in connection with the high pressure system?

A. Two boilers 48 by 16.

Q. You mean 48 inches by 16 feet?

A. Yes sir 48 inches in diameter by 16 feet long between the heads.

Q. Then you contemplate a change in the size of the boiler room also, don't you?

A. As far as that is concerned and that point was considered. It is not essential that the boilers as estimated upon should be selected necessarily for use in a plant of that character. Doubtless 48 in. by 16 ft. boilers could be placed in the boiler room if necessary. In case the wall between the boiler room and coal house required to be shifted, that would be an unimportant matter. A 48 in. by 16 ft. boiler is a boiler of standard size and accepted design. This size was selected only in order to get at the approximate cost of boilers for such a plant which might differ in minor details without affecting the cost.

Q. In the matter of cast iron pipe, am I correct in understanding that you have accepted the weights, sizes and quantities of pipe set out by Mr. Wm. Wheeler in his deposition?

A. Yes sir that is my understanding.

Q. In laying cast iron pipe how do you get your estimate of one cent a foot for restoring streets?

3118 A. I obtained the cost of relaying macadam surfaces including bedding stone macadam and tamping at a labor cost of $1.00 per day. I compared my estimates with the opinion of a local contractor and set the cost price to the contractor at one cent per lineal foot of trench. As I understand it, there is no bedding stone in the macadam at Knoxville, and some portions of the streets under which pipe lines are run were not macadamized March 31, 1901.

Q. Of what depth and what width of macadam does your estimate contemplate, and at what price per cubic yard delivered on the ground?

A. The depth of macadam, including the layer stones, as I recollect, or bedding stones, as they are usually termed, was approximately 8 inches, or from 6 to 8 inches; the width of ditch from 24 to 30 inches. This item simply included the replacing of macadam; that is, the replacing of excavated material and not the furnishing of new macadam.

Q. Assuming for the purposes of this inquiry that the macadam is new; how much would you allow per cubic yard for it?

A. That would probably have cost at that time, delivered on the ground, according to my investigations, about 60 cents per cubic yard.

Q. You have been over the city to some extent and examined the topography and nature of the soil, hav'n't you?

A. Yes sir I have been about the city incidentally, and have noticed conditions; in fact, went out for that purpose to look at excavations and to learn if possible personally the conditions so as

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to be able to judge of the accuracy of any information which I obtained locally.

Q. Now without reference to the basis upon which you made your estimates or calculations, I wish to ask your personal and professional judgment upon this question: Would you regard one
3119 cubic yard of rock to each 100 feet of pipe laid as an excessive estimate for rock in the construction of this pipe system?

A. As you can easily understand, it would be difficult for an investigator to go over this city, without uncovering the ground, and determining with any degree of accuracy how much rock would exist per 100 feet. Such information must necessarily be determined from men who have had experience, and who have personal knowledge of the actual conditions.

Q. Well without reference to any testimony in the case or to anything else except your knowledge, which is limited as you have indicated, with your experience elsewhere would you regard the amount I have stated as excessive?

A. Had I no evidence other than those personal observations which I have made as to the extent of rock in the trenches, I might not have considered one cubic yard per hundred feet as excessive.

Q. Professor, did you make any allowance, if any for replacing brick pavement?

A. No allowance was made specifically for replacing brick pavement. I have however an item in my pipe laying estimate which would cover small items of that character.

Q. What do you mean by "small item'?'

A. That is, if there were not considerable brick pavement the expense might be met without difficulty with the estimates which I have made for pipe laying.

Q. What length of re-laying brick pavement do you think your estimate would provide for?

A. I could make no reasonable off-hand estimate of that. I could probably calculate in a short time how much pavement might be permitted, but it is my understanding that no brick pavement existed at the time that these estimates were made, consequently it was not specifically considered.

3120 Q. About what would be the cost of re-laying a lineal foot of brick pavement over trenches of the width you have calculated on?

A. May I ask before I reply to that question, what character of brick pavement does the question contemplate? Is it brick laid in cement on a concrete base, or on a broken stone base?

Q. I refer to brick pavement as it actually exists in some of the streets here?

A. I have no information as to just how that brick pavement is laid. I should conclude however that it is on a macadam base with a sand cushion, the brick laid in cement. It would be my estimate on that basis that the cost of re-laying a square yard might amount to from 40 to 50 cents.

Q. Now assume it to be laid upon a concrete base, with a sand bed for the brick, and the brick laid with asphalt joints?

A. How thick a bed of cement?

Q. A six inch concrete base, sand bed, and brick laid with asphalt joints?

A. I have not very accurate data as to the cost of paving brick, but have assumed it at $10.00 a thousand, and have estimated that possibly 10 per cent. of the brick would be broken, and would have to be replaced by new, in replacing a brick pavement. I have determined on that basis that the cost of replacing a square yard of brick pavement on a six inch concrete base, would cost approximately 80 cents—that is, this would check with the cost of a square yard of new pavement laid at $1.39, which I know to be the contract price for work of similar character, if my memory is not wrong, at other places.

Q. Have you an analysis of the items entereing into the cost of laying cast iron pipe?

A. Yes sir.

Q. How much do you allow for hauling 6 inch pipe, and
3121 in order to save asking another question, you may give all the other items and their prices?

A. The cost of laying 6 inch pipe has been analyzed by me as follows:

	Cents.
The cost of the trench	3.5
The cost of the lead, based on lead at $4.80 is	2.608
The cost of the yarn based on the same price, $4.40, is	.107
The cost of cartage base on a price of 40 cents a ton is	.6
The cost of laying	2.08
The total of these is	9.615

for which I allow a contractor's cost of 10 cents in round numbers, or added a margin of 4 per cent. in addition to a contractor's profit and incidental expense allowance of 17 per cent., making a total of 11.7 cents per lineal foot.

Q. Why did you allow nothing for restoring streets where wrought iron pipe is to be laid?

A. It is my impression that that is figured into the cost of the pipe laid. I know it was my intention at the time that these summaries were made to include the whole thing in the unit price instead of putting on the cost as we did in the cost of iron pipe.

Q. You don't know how much you added for that purpose?

A. I am under the impression that it was 1 cent a foot, the same as the rest, but I may be in error about that. I hav-n't my full report here regarding the wrought iron pipe.

Q. In your estimate regarding wrought iron pipe, did you use black pipe, tarred pipe or galvanized pipe?

A. Galvanized iron pipe.

3122 Q. Do you know the list price, as it is called, for this galvanized pipe?

A. Yes sir.

Q. Please state what it is?

A. On what size of galvanized pipe sir?

Q. Suppose you run it from one half inch to three and a half inches?

A. For ½ inch the list price of galvanized iron pipe is 8½ cents per foot, for ¾ inch, 11½ cents; for 1 inch 16½ cents; for 1¼ inch 22½ cents; for 1½ inch 27 cents; for 2 inch 36 cents; for 2½ inch 57½ cents; for 3 inch 75½ cents and for 3½ inch 95 cents.

Q. Now what per cent. of this list you have read do you allow for this galvanized pipe laid down in Knoxville?

A. I find on referring to my estimates that a discount of 55% was made on galvanized iron pipe right straight through the list, but as the discount changes on pipes above ½ inch to have made the price uniform I should have discounted 60% on pipe above ½ inch.

Q. All of it?

A. On all of the pipe from ½ inch to 3½ inches should have been discounted 60% to have been consistent. However, that is an error that amounts to only ½ cent on ¾ inch to 4 cents on 3½ inch, and is in favor of the Water Company—that is, it gives a higher price than what the discounts which I have would have permitted the pipe to have been put in for, and if no estimate was made for resurfacing the streets, such extra allowance would be covered by this discount, with some margin to spare.

Q. You have a heading in your replacement account of pipe bridge Clinch Avenue. Did you allow for any other pipe bridge than the Clinch Avenue bridge?

A. I have no record of any other pipe bridge that I find.

3123 Q. In the matter of hydrants you allow for 247 hydrants. How do you get that number?

A. This number of hydrants was determined by Mr. Nixon, he having investigated the records as to the number of hydrants in use on March 31, 1901.

Q. The effect of your statement then is that 247 was the total number of hydrants in use at that date?

A. That is the number which I have recorded.

Q. What sizes of meter do you allow in your replacement account?

A. I have a total of 276 meters, of which 2 are 4 inch, 1,—3 inch, 15,—2 inch, 15,—1½ inch, 16, 1 inch 47 ¾ inch and 180 are ½ inch and ⅝.

Q. Now please name the prices you have allowed to each one of these sizes, if you have it?

A. For 4 inch $205.00, 3 inch $86.00, 2 inch $52.00 1½ inch $30.00, 1 inch $18.00, ¾ inch $14.00 ⅝ inch $10.00 and ½ inch $9.50.

Q. Do those prices include connections?

A. Include connection and setting.

Q. What particular style or make of meter are your prices based on?

A. These prices are based on the average prices paid by the com-

pany for meters as determined from the records by Mr. Nixon. As various kinds, makes and designs of meters could not be determined from the records, this method was considered to be the fairest possible. I have checked these prices by comparison with contract prices for meters at other places and am impressed with the fact that they are fair and reasonable.

Q. What do you mean by contract prices for meters?

A. Contract prices for meters purchased by other corpo-
3124 rations in quantity.

Q. Of what kind and make?

A. Well there are as great variety of kinds and makes as there are in the meter list of the Knoxville Water Company, I cannot state without referring to my records of these prices what the kinds and make are.

Q. Doesn't the price vary largely in the same size dependent upon the make and style of the meter?

A. It does very considerably.

Q. Now Mr. Brown in the matter of meter boxes why is it that no allowance is made for replacing cinderlithic pavements?

A. My record shows that such allowance was made.

Q. I ask the question because I see no indication of it being allowed?

A. That is included in the cost of meter boxes.

Q. How much did you include in your aggregate of $1656.00 as cost of restoring cinderlithic pavements?

A. One dollar per box, or $276.00—that is contractor's cost. There is 7% to be added to that as the contractor's price of $1.07.

Q. You got your cost for service connections from Mr. Nixon, didn't you?

A. Not entirely sir. Mr. Nixon had pretty thoroughly investigated that matter before my coming. I also discussed this matter with local people who were familiar with the conditions.

Q. In the matter of gates, did you adopt the same number and sizes that Mr. Wheeler sets out in his estimate?

A. That is my understanding.

Q. But you did not adopt his prices?

A. No sir.

Q. Where did you get your prices for gates?

A. I determined the prices which had been paid for
3125 gates in other localities by other contractors, adduced in that way a discount from the list price of valves from manufacturers, obtained prices for the various sizes of valves by the use of this discount, then corroborated the prices so obtained by comparison with contract prices elsewhere.

Q. In the matter of gate and valve boxes, you have 496 boxes at $2.25 and 167 boxes at 70 cents each. Are these 167 boxes priced at 70 cents each in the sidewalks or in the street?

A. I have these 167 boxes marked "service". They were evidently for use over stop-cocks; just where, I have no personal knowledge.

Q. Where was it intended in your replacement estimate to put them?

A. I have no record that I can refer to on which I can base an answer for that question.

Q. Are they circular top boxes?

A. Those would be the ordinary service box which is sometimes made with a round top and sometimes with a rectangular top.

Q. What is the thickness of the iron of which the top is made?

A. It would be my opinion that the thickness of the material of the ordinary service box is not far from a one-fourth of an inch—5/16 on an average.

Q. Would you advise the use of a box of that size in the streets?

A. No sir.

Q. Then your replacement of gate and valve boxes allows only 496 boxes in the streets?

A. Apparently that is a fact.

Q. Have you your statement from which you make your estimate of tools, teams, office furniture, fixtures and supplies?

A. Yes sir.

Q. Is it a long statement?

A. No sir; it is comparatively short.

3126 Q. I wish you would read it to the stenographer then please?

A. I find this statement as follows:

Two horse wagon and harness	$350.00
Office furniture and fixtures Gay St	800.00
Supplies, &c at Pump Station	350.00
Supplies, &c at Filter Station	550.00
Supplies at Shop and Yards	4100.00
Total	$6150.00

Q. Were those prices fixed by you or Mr. Nixon?

A. We discussed this matter jointly, and as this is a matter which cannot be determined with any possible degree of accuracy as to what would be a reasonable amount of supplies to have on hands at any particular time, we therefore set this figure as in our judgment approaching to a reasonable amount.

Q. I read you the following question and answer from the deposition of Mr. Wm. Nixon on page 832, "Do you undertake to say that it is not correct that the company is entitled either to pay all renewals and repairs and all costs of maintenace out of current funds or to have a renewal or sinking fund accumulate for that purpose? A. I should think that either plan would be correct, but not both plans at the same time." I propound to you now the same question that I did to Mr. Nixon and ask if you make the same answer. First to explain the question a little more fully I would add, as the property of a water company necessarily depreciates from year to year, is it not right that the company should be allowed to pay the cost of that depreciation and the renewal thereof out of its current revenues,

or that it should on the other hand be allowed to have a sinking fund accumulate for the renewal of that depreciation?

A. It is my opinion that it would be proper business policy, and would in fact be essential to the welfare of any company
3127 to either provide a renewal fund, which should accumulate from year to year for the purpose of providing for depreciation, repairs and maintenance, or pay them out of the current funds. It appears to me that the renewal fund plan would be decidedly the more businesslike and proper to be followed.

Q. I have asked Mr. Nixon to furnish the correspondence upon which the prices of pumping machinery in the replacement value were determined, and understood him to refer me to you for that correspondence. If I have not already asked you for that correspondence, I will ask you now to furnish it?

A. Yes sir, that will be furnished.

Q. Also I ask you to put into the record the correspondence upon which the price of filters in the replacement value was determined?

A. Very well sir.

Q. Mr. Brown the callings of mechanical and hydraulic engineers are ranked among the learned professions now, are they not?

A. I believe so.

Q. I desire to ask you now this hypothetical question: Suppose you had been retained by the City of Knoxville to build, March 31st 1901, a Water Works plant to supply this city with water from the Tennessee river, including the pumping works, filtration, reservoir, standpipes, distribution system and service pipes; that the services required of you consisted of making all the preliminary investigations necessary to determine the size and scope of the plant, including preliminary plans and specifications for submission to the City Council or Water Works Commission for their approval; that it included, after their approval had been given, or changes suggested had been incorporated into the plans, the preparation of detailed plans
3128 and specifications, obtaining the letting of this work to various contractors for the different classes and kinds of material entering into it; the inspection, either personally or through assistants to be paid for by you, of the various classes of materials, including analyses where necessary, and at the foundry, shop or otherwise, where such foreign inspection was deemed necessary, the inspection of the work of construction in all its branches as it was carried on, including therein all necessary lines, levels, grades, &c. to be given, as well as detailed drainage of various parts of the work as required for the carpenter, brick mason, machinist, foundry-men &c.; the keeping of proper records and measurements of all work as it progressed; the final preparation of detailed maps of the finished work, including all streets, houses, &c. necessary to properly show in sufficient detail and clearness all the underground work, both of distribution pipes, service pipes, &c. and the rendering of a report at the end detailing in full the progress and culmination of the work,—what per cent. upon the total cost of the works would you deem to be fair and reasonable for performing such services, said percentage to include, not only your own personal compensation, but the compensation of all

of assistants, inspectors &c. including tests of materials that would be necessary to a proper determination and acceptance of the same, and all other expenses going to make up the general engineering charges of work of this description?

A. I would say in reply to this question as to the proper engineering fee for work of the magnitude and character required for the making of plans and the supervision of construction of a water works for the city of Knoxville to cost approximately $380,000.00, that this question of a proper engineering fee was considered very carefully in the making of my estimates from all standpoints, and was
3129 placed at 3 per cent. upon the cost of the plant. This service consisted in the making of such preliminary investigations as were necessary to determine the size and scope of the plant, including preliminary plans and specifications, and the preparation of detailed plans and specifications and the letting of this work to various contractors for the different classes and kinds of materials entering into it—such personal inspection as would be necessary and common in such cases, and the pay of such assistants as were necessary for the proper supervision of the work of construction, or the making of the plans, including analyses, where necessary, at the foundry shop or otherwise where such foreign inspection were deemed necessary, including the keeping of proper records and measurements of the work as it progressed, and the final preparation of such necessary maps of the finished work as were necessary to sufficiently show the underground work, with whatever report might be required at the end explanatory of the work which had been done; it is my opinion that in the South, as well as in other parts of this country, that competent engineers could be obtained who would perform this service for the percentage stated, which amounts in round numbers to $10,000.00; that this sum would probably leave the engineer net for his services in the neighborhood of $3,000.00 or $4,000.00, which would be a fair compensation for the work, considering that he would probably devote only a portion of his time to such service personally, at the same time doubtless having other work in hand which could be done without interference with this work.

Q. Now do I understand that you answer this question with reference to all the conditions and facts supposed in it by saying that the amount you have allowed for engineering services in this case is sufficient, applying that answer solely and exclusively to this ques-
3130 tion as it is written, and without reference to anything else?

A. I should say that my answer applies to all the conditions stated which I would deem necessary or essential for the proper construction of the work, the extent of such necessity being determined by my own judgment.

Q. That is not the question I am asking you Mr. Brown; I am asking you to answer this question without reference to what you consider necessary or proper, and to answer the question solely as a response to the words that are written in it?

A. The word "necessary" is used in a number of cases throughout this question. The judgment of different engineers might vary considerably as to what was "necessary." It may be that my opinion

of what is "necessary" differs essentially from that of the writer of this question, but in my opinion all necessary work, all essential work, all work which a conscientious and painstaking engineer would feel to be required of him could be done with the profit to him at the rate stated.

Q. What I want Mr. Brown is that you shall accept the question as it is written and answer it without first criticising it. If you will first answer the question as it is written, if you desire to add any criticisms to the question afterwards, then you may do so?

A. It appears to me Mr. Caldwell that this question does not set out a state of facts—that it would depend very considerably upon the judgment of the engineer as to what was necessary. Mr. Wheeler's judgment might be different from mine Mr. Kimball's might be different from mine and Mr. Ludlow's or Mr. Wingfield's might differ very considerably from mine, but I have said that I believe that the work can be done, and would be done, if not by me, by some other engineer at the price stated, and that it would
3131 include all the necessary work—all essential work.

Q. Now do you mean the work implied in the question, or the work which you think should actually be done?

A. If you will detail what that "necessary" work is, I will be able to answer you?

Q. I refer to the work set out in the question and describe it all to you as necessary, and now once more ask you to answer the question?

A. I have answered that question in the foregoing answer to the best of my knowledge and belief.

Mr. CALDWELL: Well I don't so understand it Mr. Brown, but if you have given all the answer you care to give I don't care to bother with it further.

The further taking of this deposition was adjourned until Friday morning, December 18th, 1903, at 9:00 o'clock A. M.

3132 FRIDAY MORNING,
December 18th, 1903—9:00 o'clock a. m.

Continuation of cross-examination of C. S. BROWN:

A. Replying to the question of Mr. Caldwell as to the possibility of locating two pumps of the same dimensions as the present Worthington pump in the pump pits without greater modification than was considered in my estimates, I would state that from the data at hand it is apparent that the pumps could be placed as I have indicated, and that if excavation in excess of the amounts estimated upon was required, even to the cutting out of the entire amount of material between the pits, that such excavation would be equivalent to an open cut from the river, and could be done at a less expense than the expense of sinking two pits from the surface independently.

Q. Mr. Brown, do you think you could remove the water plungers and the piston rods without further enlarging the space?

A. With rods which uncouple at the cross-head, it is evident

that no serious difficulties would be encountered in the removal of these parts, and even if there were, a minor difficulty of this sort is one easily eliminated.

Q. And you don't think that one pump would be in the way of the other in making such removal?

A. There seem to be no difficulties of this character which would be worth considering.

Redirect examination by G. W. PICKLE:

Q. Prof. Brown, as applicable to the subject about which you were last examined on yesterday afternoon, being the hypothetical question propounded by counsel on the other side with reference to engineer's fee, what period of time would be covered in the construction of a water works system like that of the city of Knoxville
3133 during which the services of an engineer would be required?

A. I- would be my estimate that work of the character stated and of the extent proposed in the estimates, that with proper arrangement of the work it could be accomplished in about a year.

Q. And you think the estimate of $10,000.00 for engineering would net to the engineer about $3,000.00 or $4,000.00?

A. That would be my estimate of it.

Q. And that it would not require his full time or exclude him from other work of a similar character during that time?

A. Not at all.

Q. Now, Prof., this estimate of the replacement cost of this plant on the 31st of March, 1901, state whether or not that represents the joint judgment of yourself and Mr. Nixon after full consideration and discussion of the whole matter?

A. It does in every particular.

Q. With what particularity did you and Mr. Nixon go over this plant and the items of cost, and what consideration did you give to the matter; just state in a general way?

A. We went into the matter in great detail—with far greater detail than any contractor would be able, or would go into it for making an estimate upon the work. We determined local conditions and local prices, the cost of materials to the greatest extent possible, and our results represent our conclusions after a very careful and thorough consideration of the matter.

Q. You have stated that there were differences between you and Mr. Nixon on some items, and were asked whether or not Mr. Nixon's prices were uniformly lower than yours. How was the fact; was that so? or were they sometimes higher than yours and the matter settled by a discussion and adjustment between you?

3134 A. Mr. Nixon and myself did have differences of opinion, and in some cases, some very decided differences, which it took considerable time and much patient discussion to settle. I don't know that any case was settled by concession or by "splitting the difference" or in any such manner, but by thorough and careful discussion, and the fair and proper conclusion reached, as far as we were able in our judgments.

Q. Well, you have not stated whether or not Mr. Nixon's prices were in all cases lower than your own or sometimes higher?

A. I don't remember that his prices were lower than mine excepting in one or two cases. They were higher than mine in the matter of earth and rock excavation in some cases as I recollect, and he made concessions to me on account of my experience in such work and knowledge that work had been done under such and such conditions at the prices I named.

Q. State whether or not it was your endeavor to fix the prices as of the date of this replacement?

A. As nearly as it was possible by obtaining costs of that date as nearly as could be determined in some cases within a day or two of March 31, 1901.

Q. State what length of time you have employed in this investigation—I mean from the time you began until the present time?

A. I came here the last week in August and spent a very large portion of September on this work. I then returned in October and put in about two weeks of that month in further work. During my time at home I put in a very considerable portion of such time on investigations and calculations pertaining to this work, which have been continued up to my return here for this hearing on Monday.

Q. I will ask you whether this work of replacement is one that can be done even by an experienced engineer within a few
3135 days, with any degree of accuracy?

A. I see no possibility of an engineer spending a few days on this work determining prices and quantities under the conditions which we determined them, with anything like reasonable accuracy.

Q. Did Mr. Nixon spend a longer or shorter time upon this investigation than you?

A. Mr. Nixon had already done a large amount of work upon the matter previous to my coming—probably two or three months—maybe longer.

Q. Prof. Brown in a work of replacement of this sort, state whether or not there is any special call upon the technical knowledge of an engineer, as there is in the designing and construction of a water plant?

A. The designing and construction of a water works of this character would require a very considerable technical knowledge, and would require a man experienced in engineering work to properly consider all conditions and to obtain the best results. For obtaining replacement cost—for obtaining the various quantities necessary—comparatively little technical training is required. A good capable business man, with some slight assistance, possibly in a technical way, or many good capable business men would have such technical knowledge as was essential for the proper consideration of work of this character, and would be able to arrive at a reasonably close estimate of the value of the work. Such work primarily needs the services of a man who is an investigator, or who knows how to investigate and go into details.

Q. I will ask you whether or not professor the value of the opinion of an engineer or other person as to the cost of replacement of a

plant of this character, or of any other work, depends largely upon the extent to which he has familiarized himself with local
3136 prices and conditions, and the extent to which he has gone into the investigation?

A. I should say that that must be the essential and fundamental condition.

Q. Now prof. you have stated that in the replacement of certain portions of this plant, and especially of the buildings, you have used for floors and foundations concrete instead of brick as originally used. I will ask you whether or not this substitution of concrete for brick made this character of work better or worse as regards its substantial character, durability and capability of use than the original construction?

A. Concrete has come into very extensive use within the last 5 or 6 years, particularly for the construction of foundation work in localities where good building stone is not obtainable, at a low rate, and in places where brick has been perhaps the best attainable material up to that time. Concrete construction, particularly where the cost of the materials entering into it is cheap, makes a much cheaper material for use in such work than brick and is far more permanent and durable. Such substitution of material is evident in the construction of the work of the Knoxville Water Company beginning previous to 1901, and such substitution was made as being more desirable than brick for the foundations and work of similar character.

Q. Well what do you mean by your reference to construction by the Knoxville Water Company in concrete. Has it adopted concrete for foundations in its later construction to any extent?

A. The Intake tower constructed previous to 1901 is a concrete structure; the foundations for the new portion of the engine house is of concrete with the exception of outer and inner rings or walls of brick. The extensions to the settling basins at the filter
3137 plant are of concrete, and concrete is used where work of extension has made it appear advisable.

Q. So that you regard this work improved in its character by the use of concrete instead of brick?

A. Very considerably.

Q. The concrete construction being of more recent date than the original construction of this plant?

A. Yes sir.

Q. Now in some instances you have stated that in your estimate of replacement you have not followed explicitly the make of machinery or boilers or engines that were installed in this plant. I will ask you in the first place, in a general way, whether the changes you have made in this respect were equal, or worse or better than the machinery that you found in the plant, as regards durability, capacity, service, &c.?

A. In some portions of the plant, particularly with the pumping machinery, our estimate was based on the substitution of a different type of machine. Instead of the Deane vertical engine was substituted a Worthington pumping engine of greater capacity, greater

economy, about one half approximately, greater ease for operation and accessibility for repairs, a machine which is of a more approved type and which would make the plant far more efficient and reduce the cost of operation. For filters, estimates were based upon a filter which has been used by both Mr. Nixon and myself, and the operation and efficiency of which has been highly satisfactory. It is a far simpler device than the device in use at the present time by the Knoxville Water Company, and is highly efficient in its results.

Q. Were there any other portions of the machinery that were substituted?

A. At the filter plants an estimate was made upon a pair
3138 of horizontal boilers instead of the one horizontal and one vertical Manning boiler which exist at the present plant. This change was made as the Manning boiler is practically obsolete and the change was considered a desirable one for the sake of uniformity of apparatus if for nothing else.

Q. I believe you used the Jackson filters in your replacement plan?

A. Yes sir.

Q. You were asked on your cross examination whether you knew of these filters being used by competent engineers in the construction of water plants and were unable then to recall. I will ask you now if you are able to recall instances where they have been used by other engineers?

A. I did not at that time recall the use of the Jackson filters by other engineers. I now recall that Mr. Owen Ford of St. Louis has used several, Mr. Granberry Jackson, engineer of the plant at Dyersburg has also used them. It is my impression that Mr. Ludlow has one or two of them installed, possibly more; I am also of the impression that Kirkpatrick and Johnson of Jackson, Mississippi have installed these filters. As the ordinary water filter is merely a sand bed in a tank, and the various filters manufactured at the present time and heretofore have only differed in minor mechanical details, it is my opinion that the best filter is that which is the simplest and which has the least possible complications and in this respect I believe the Jackson filter is not excelled by any.

Q. Now I will ask you to state generally whether the machinery you have referred to as having substituted is of standard make and quality, and whether its substitution has had the effect to make the plant more or less valuable than it would have been if the original machines had been restored of the same kind?

3139 A. In effect the substitution is to make a plant of greater capacity, greater economy and efficiency and has been an improvement in the construction of the plant. The machinery is in all particulars of standard make and quality.

Q. Now Prof. Brown something was said on cross examination in regard to the capacity of the engine or engines at the pump station. I will ask you whether or not the substituted engines were of the same size and capable of performing the same duty as the Worthington engine that stands there, and whether or not they were of greater capacity or better capable of performing the duty than the other engine which was substituted?

A. The engines proposed were two engines—exact duplicates of the present Worthington engine, which is of the two engines at present in the plant the one of greater capacity, efficiency and economy.

Q. Then you substituted the present Worthington engine by one precisely like it and the Deane engine by a Worthington of greater capacity and economy?

A. Yes sir.

Q. Mr. Wm. Wheeler in his deposition places the capacity of this Worthington engine at six or seven millions gallons of water daily, meaning I presume of 24 hours. I will ask you whether the engines and each of the engines that you replaced had a like capacity with the one that stands there?

A. They have a like capacity with the one which stands there—a like capacity with the engine in the present station which has the greater capacity; whether that is 4,700,000 as I think I calculated, or 6,700,000 gallons as I believe Mr. Wheeler calculated.

Q. Upon what does the quantity of water that an engine pumps, depend?

3140 A. It depends on its piston displacement and piston speed.

Q. Well taking two engines of the piston displacement as your substituted engines were the same as the Worthington already there; how do you account for the difference between your estimate and Mr. Wheeler's?

A. Mr. Wheeler evidently estimated on a piston speed of about 140 to 150 feet per minute while I estimated on a piston speed of 100 feet per minute which is standard for direct acting steam pumps of the character assumed, although some manufacturers do rate them on a little higher piston speed, possibly 120 feet per minute, but that is as far as good practice would permit certainly.

Q. Well your replaced engines, giving them the same piston speed would pump six or seven millions gallons as easily as the one that is there, would they not, if they will do that?

A. They will perform exactly the service.

Q. So the quantity is simply a question of speed, the size being the same?

A. Simply a question of speed of operation.

Q. Now passing to the subject of restoring streets and macadam you stated on cross examination that you allowed one cent per lineal foot over the entire system. Was this allowance to any extent for refilling the trenches or was it alone for macadam?

A. Simply for macadam.

Q. Where did you place the expense in your estimate of refilling the trenches?

A. In the cost of the trench.

Q. Do you mean in the cost of laying the pipe?

A. In the cost of laying the pipe.

Q. Does macadam extend over the entire system or only a part of the system in Knoxville?

3141 A. I understand only a portion of it.

Q. Do you know about what portion of it?

A. It is my impression, from rather meagre information gathered upon this point, not over 20% to 25%.

Q. Then you simply adopted this one cent on the entire system as a method of fixing price for macadam?

A. I simply made that as an allowance to the entire system for the refinishing of the macadam at any points necessary.

Q. Then I notice in your replacement estimate that you add 20% for contractor's profits and contingencies. What contingencies is this intended to cover, and to what extent is it contractor's profits and to what extent contingencies?

A. It would be impossible to state in any given case what would be the probable contractor's profits and what the contingent expenses which the contractor would have. The contractor might make on that work a clean 20% or more because other allowances have been made in the various calculations of the costs going to make up the total unit price; at the same time, weather conditions, unexpected rock possibly more than the contractor had estimated for, and other contingencies of the same character might possibly cut down his profit so that it might not net him 5%—it might net him 10% or any intervening amount.

Q. Now Prof. assuming that one half of the streets on which pipe was laid were macadamized and required replacing of macadam, what would be your allowance per foot for replacing macadam; and also assuming that one fourth of the streets required replacing of macadam what would it amount to per lineal foot at the rate you have allowed on the basis of one cent per lineal foot upon the whole pipe system?

3142 A. The total number of feet of cast iron pipe amounts to 287,149 approximately according to Mr. Wheeler's measurements. At one cent a foot the total amount allowed for replacing macadam is $2871.49. If only one half the streets were covered by macadam the amount allowed of actual macadam replaced per foot would be two cents. If only one fourth of the streets were macadamed over, the allowance would be 4 cents per foot.

Q. Now is the 20% for contractor's profits and contingencies to be added to these figures?

A. Yes sir; I think that should be 17% for contractor's profits and contingencies and 3% for engineering.

Q. Professor in speaking of the boilers at the filter station yesterday you gave a size 48 by 16. I will ask you whether that was a mistake or not and what was the actual or correct figure?

A. I find that I have calculations for a 48 by 16 and a 54 by 12 in my book, and I looked at the 48 by 16 estimate without thinking of the other which was made afterwards, but that would be an immaterial point and a matter of no special consequence—there would be comparatively little difference in the price.

Q. Professor I will ask you whether or not you made actual measurements and calculated the number of brick entering into the buildings constituting this plant?

A. I did.

Q. What was your method of measurement and calculation?

A. My method of measurement was to obtain the actual number of cubic feet in any wall, deduct the openings, and multiply by the number of brick to the cubic foot which was taken at "17" the same as used by Mr. Kimball I think in his estimate.

Q. How did you get at your prices for brick work; by
3143 what process or processes?

A. By a careful determination of the prices paid at that time for brick—that is, the current prices of material March 31, 1901, as nearly as could be obtained and estimate of the cost of labor and of incidental expenses. In this way the cost of laying brick per thousand in lime, natural cement and Portland cement was gotten at and used in our calculation.

Q. Did you ascertain and consider the prices paid contractors for like work also in making this estimation?

A. Those figures were also obtained locally and elsewhere, and were used for corroboration of such estimate.

Q. And you made an actual analysis of all the material, labor etc,?

A. Carefully analyzed the costs in all essential details.

Q. What were the prices at which you fixed bricklaying of the various kinds in your replacement estimate. I simply want the prices per thousand for the present. You can state whether you give the prices with or without the per cent. for architects or engineering services or contractor's profits and risks and contingencies?

A. The cost of brick laid in lime mortar was placed at $10.00 per thousand actual brick or kiln count, with 12% added, or $11.20 per thousand representing contract cost. Brick in Louisville cement was placed at $11.00, contractor's cost with 12% added for profit and contingency expense, or $12.32 per thousand actual brick. Brick in Portland cement was placed at $12.50, contractor's cost, or $14.00 with the 12% profit and contingent expense added.

Q. What do you add to these prices for vitrified brick, Mr. Brown?

A. $6.00 per thousand with 12% added or $6.72.

Q. Now Professor you stated somewhere in your cross ex-
3144 amination that some vitrified brick were omitted in your replacement at the pump station. Why was this done, and explain the situation?

A. The vitrified brick were omitted at the pump station as common brick were equally well suited for this purpose and the vitrified brick were purely ornamental.

Q. What part of the work was it that these vitrified brick were used in?

A. Principally upon the outside of the circular projecting end of the pump house.

Q. On the side next to the river?

A. Yes sir.

Q. Did you have any explanation from any officer of the compan*t* as to why they were placed there originally and whether they were necessary?

A. Mr. Kimball stated to me that it was purely for ornament.

Q. In regard to the boilers, some question was asked as to the pressure that they would sustain, and I do not know whether you stated distinctly or not, but I now ask you to state whether or not the boilers you substituted were capable of sustaining the same pressure as the boilers they were substituted for?

A. They were made according to the same standard of requirements and would carry the same pressure with the same degree of safety.

Q. On your cross examination Professor you were asked in regard to the price of cast iron pipe, which in this replacement on the 31st of March 1901 you place at about $19.45 per ton. In that connection you were asked as to the reasons that actuated you in fixing this price and referred to the Nashville sale. I will ask you to explain fully the grounds upon which you fixed and now fix the price
3145 as stated for cast iron pipe at that date. If you had other reasons than the Nashville sale referred to as stated on your cross examination you may please state what they are?

A. I will state in reply to this question that the cost of cast iron pipe was determined, based not only upon the Nashville sale, but on prices which had been paid by contractors for cast iron pipe approximately at that time, that is March 31st, 1901. These prices were corroborated by letters from makers of cast iron pipe, which I think have been introduced in Mr. Nixon's deposition. They have been further corroborated by an investigation of the prices paid by something like 16 or 18 cities, all more remotely removed from pipe foundries and all more disadvantageously situated for the purchase of pipe than the city of Knoxville, and such prices have, in my judgment fully corroborated the correctness of the estimate by me as to the fair cost of the pipe of date March 31, 1901. I would state that these prices obtained for pipe furnished other cities, are sales made within 4 to 6 weeks either side of March 31, 1901, and show a remarkable uniformity.

Q. Professor what is the uniform custom, if any as regards biddings on pipe as to the place of delivery, whether the freight is included or not?

A. The uniform custom is to purchase pipe f. o. b. the point of delivery.

Q. Were the sales or purchases in the 16 or 18 cities which you refer to made, or purported to be made at competitive biddings?

A. Practically all of them were so made and several bids were received and recorded.

Q. Were the prices indicated by those sales such as would have justified the price of which you have placed this pipe at Knoxville?

A. Fully and thoroughly in my opinion.

Q. Were any of those sales, sales by the United States Pipe Company?

A. A very considerable number of them.

Q. Now Professor Brown going to the laying of pipe, I wish you

would just give your analysis of the cost of the laying of pipe
3146 both cast iron and wrought iron. I believe you gave one size of wrought iron on yesterday, and I will now ask you to give all sizes?

A. The analysis of the cost of 6 inch cast iron pipe was given in my statement yesterday. I have made an analysis of the cost of laying of cast iron and wrought iron pipe based on the conditions determined by me in the city of Knoxville of March 31, 1901, which is as follows:

Analysis of Cost of Laying Cast Iron Pipe Per Foot.

Size.	Trench & backfill.	Lead.	Yarn.	Cartage.	Labor, &c.	Total.	Contractor's cost price allowed.
	c.	c.	c.	c.	c.	c.	c.
3.....	3.3	1.42	.06	.3	2.33	7.41	8.
4.....	3.4	1.75	.08	.4	2.55	8.18	9.
6.....	3.5	2.61	.11	.6	2.80	9.62	10.
8.....	3.6	3.55	.16	.86	3.30	11.47	12.
10.....	3.83	4.77	.19	1.16	4.40	14.35	15.
12.....	4.15	6.32	.20	1.5	4.67	16.84	18.
14.....	4.5	7.47	.23	1.9	7.11	21.21	22.
16.....	4.85	8.41	.24	2.3	12.	27.80	28.
18.....	5.2	9.6	.29	2.8	18.	35.89	36.
20.....	5.55	10.53	.32	3.3	24.	48.70	45.
24.....	5.9	12.42	.38	4.	30.	52.70	56.

Basis.

Lead at $4.80 per 100 #
Yarn " $4.00 " 100 #
Lead and Yarn quantities, U. S. Cast Iron Pipe Co.'s Standard.
Labor—Foreman, $3.00 per day.
" Common, $1.00 " "

Trench and Backfilling.

M. F. Rourke's statement that he formerly did contract work for the Knoxville Water Company and let out ditches for 4" and 6" pipe at 3 cents per lineal foot, including bell holes.

Backfilling and relaying macadam costs ½ cent additional.

NOTE.—Only backfilling is included in above estimate of
3147 cost of trenches. Relaying macadam is allowed in an item separate and distinct from any of the above items of cost.

Rock excavation is allowed for in the same manner.

(See "Cost of laying cast iron pipe" in Replacement Estimate, page 13.)

Comparison of Prices for Laying Cast Iron Pipe.

1. Size.	2. Cost as above.	3. Cost per cu. — allowed.	4. Per cent. margin.	5. Cost, +17%.	6. Ludlow Chatta. case.	7. Per cent.
3	7.41	8	8%	9.36	7	33
4	8.18	9	10	10.53	9	17
6	9.62	10	4	11.7	10	17
8	11.47	12	5	14.	12	17
10	14.35	15	5	17.55	15	17
12	16.84	18	7	21.06	18	17
14	21.21	22	4	25.74	25	3
16	27.80	28	1—	32.76	33—	2
18	38.89	36	.3	42.12	42	.3
20	43.70	45	3.	52.65	50	5.
24	52.70	56	5.5	65.52		
Average % Margin...			4.8	Average.....		12.43

NOTE.—Column 1. Size Pipe.
" 2 Total Contractor's costs per analysis Table Page 146.
" 3 Prices allowed for Contractor's Costs.
" 4 Per Cent Margin of allowed prices over computed Contractor's costs.
" 5 Cost Price allowed, plus 17% Contractor's profits and contingent expense.
" 6 Ludlow's prices Chattanooga Case and admitted in his deposition to be applicable to this case.
" 7 Per Cent. Contract price allowed in excess of Ludlow's prices.

3148 *Cost of Laying Wrought Iron Pipe Per Foot.*

Size.	Cost of trench and backfill.	Labor laying materials, &c., hauling.	Cost to contractor.	Cost of laying, plus 12% contractor's profit and cont'g expense.
½	2.8c.	1.2c.	4c.	4.5c.
¾	2.8	1.2	4	4.5
1	2.8	1.2	4	4.5
1¼	2.8	1.3	4.1	4.6
1½	2.8	1.3	4.1	4.6
2	2.8	1.5	4.3	4.8
2½	2.8	1.5	4.3	4.8
3	2.8	1.7	4.5	5.0
3½	2.8	1.7	4.5	5.0

Basis.

M. F. Rourke's statement that 30 feet of ditch is a day's work for a laborer to excavate, put in ½" to 1" pipe and cover.
Labor cost in above estimate $1.00 day.

3149 Q. Now Professor in arriving at the cost of laying cast iron and wrought iron pipe you reduced the matter to its elements and ascertained the prices stated in the above table. I will ask you whether or not you allowed prices in excess of the amount indicated by your analysis and calculation, and what those prices were for the several sizes of pipe?

A. I made a very careful determination of the cost of these various items from local conditions and from prices obtained as of March 31, 1901, and I in all cases increased the computed cost—the percentages of these increases ranging from 3/10 of one per cent. which was the closest on 18 inch pipe, to as much as 10% increase on 4 inch pipe, and to those prices thus obtained added the 17% allowed for contractor's profits and contingent expenses.

Q. Well now give a list of the prices that you actually allowed before adding the 17 %, for each size of pipe in your plan of replacement?

A. The following prices are for cast iron pipe laying:

3 inch	8	cents.
4 "	9	"
6 "	10	"
8 "	12	"
10 "	15	"
12 "	18	"
14 "	22	"
16 "	28	"
18 "	36	"
20 "	45	"
24 "	56	"

The following are the prices for laying wrought iron pipe:

3150

Sizes one-half inch to one inch	4	cents.
" 1¼ to 1½	4 1/10	cent
" 2 in. to 2½	4 3/10	"
" 3 " " 3½	4 5/10	"

Q. Now as I understand you 17% is to be added to all of the above prices named in the last answer?

A. 17% for cast iron, 12% for wrought.

Q. Professor from the cost of laying the pipe do you exclude anything except the price of the pipe, rock excavation and replacing macadam, or is all of the rest embraced in the cost of relaying as you have given it?

A. These prices do not include the cost of the pipe, the cost of rock excavation or of replacing of macadam.

Q. It includes everything else incident to the laying of pipe?

A. All other items incident to pipe-laying are included.

Q. Now Professor you indicated the careful analysis of the cost of laying pipe in the foregoing questions. I will ask you whether or not you have made further investigation as to what had been the

experience of others or of yourself with reference to these prices and whether in that view they are reasonable?

A. I made careful comparisons of the prices determined by my analysis for the laying of pipe with records of pipe-laying cost determined from various sources, compared them also with the record of prices which was made in the Chattanooga case by Mr. Ludlow and stated in his deposition in this case to be applicable here. I would state that in my estimate without contractor's profits or contingent expense allowance of 17%, that my prices up to and including 12 inch pipe are in excess of those prices stated by Mr. Ludlow, or are equal to them. For prices above 14 inch my prices are slightly lower without the contractor's profit and contingent expense allowance while the prices stated by Mr. Ludlow included
3151 the item of contractor's profits, as I understand.

Q. Well as to that matter of contractor's profits and contingencies, why is it that you allow 17% on laying pipe while you allow only about 5% on the pipe itself, Professor; what is the reason for this discrimination?

A. For the reason that a contractor who undertakes the laying of pipe has a great many more contingencies to meet; his risks are far greater than the man who simply buys a certain amount of pipe from a reliable manufacturer of such material.

Q. Is that not especially so where the pipe is sold delivered free on board cars at the risk of the seller?

A. That is particularly so in such case.

Q. Professor, you have stated in your estimate of replacement you have not included anything for laying pipe under a brick pavement. Was there any such item in the estimate of Mr. Wheeler of the plant that you were called upon to replace prior to March 31, 1901?

A. I don't recollect of any such item, but whether it were there or not it was our purpose to design this plant—to make an estimate of the cost of replacing a plant under the same conditions as which the pipes were laid in the city.

Q. In other words you undertook to replace substantially the plant constructed prior to March 31, 1901 under the conditions stated in Mr. Wheeler's estimates?

A. Yes sir.

Q. Do you know whether or not the water company had laid any pipe under brick pavement, that is requiring the removal and replacement of brick pavement prior to March 31, 1901?

A. I do not understand that such work was done.

Q. Professor your attention was called to the prices of
3152 stone for macadam given by Mr. Getaz in his deposition on your cross examination yesterday. Now I will ask you whether or not you know as to the date to which these prices were applicable—whether they were applicable to the date of your inquiry, to wit: March 31, 1901?

A. It is my impression that those prices refer particularly to the years from 1893 to 1895 and not to March 31, 1901.

Q. Professor there seems to be some material differences between

yourself and Mr. Wheeler's estimates in regard to quantities at the pump station. Can you explain how this comes about and whether or not his estimates involve quantities of construction and reconstruction of the same parts of the plant and thereby duplicate quantities?

A. It is my impression that I stated in my previous testimony that the estimate of brick given by Mr. Wheeler apparently included the construction of new parts and the reconstruction of old, new material being purchased at each time.

Q. Well in his estimates do you or not understand that he embraces the parts of the plant that were originally constructed and also the part that replaced it and embodies quantities that cover both constructions?

A. That was my impression. It is my recollection that those quantities did cover the old and the new construction and the reconstruction.

Q. At the date of your replacement estimate those old quantities were not there, were they, that had been replaced by new?

A. Those that were replaced, that is the old portions of the buildings that had been replaced were not there, of course.

3153 Q. Now you have given already an analysis and of the method pursued by you in determining the cost of laying pipe, both cast iron and wrought iron and of the manner in which you fixed those prices. Now without asking you to go into an analysis and a like explanation of your methods of other parts and other work on this plant, I will ask you to state if you pursued substantially the same course with reference to all of the items that entered into the replacement of this plant where they were susceptible of analysis and confirmation such as you secured with reference to the pipe-laying?

A. I would state that I have not in any case, or on any point explained fully the care and the detail which were undertaken in determining the cost of the unit items, but that in every case, as far as possible, and as far as the time permitted me would allow, that prices and costs were carefully analyzed and carefully checked by actual records, or from my own personal knowledge in some way.

Re-cross examination by Mr. CALDWELL:

Q. Mr. Brown, have you the correspondence I called for yesterday?

A. Not here sir.

Q. But here in Knoxville?

A. A portion of it is.

Q. I wish you would get it for me please, so I may see it?

A. I will hand it to the stenographer later.

Adjourned until 9 o'clock Saturday morning December 19th, 1903.

3154 SATURDAY, *December 19th*, 1903—9 o'clock a. m.

Continuation of cross-examination by Mr. CALDWELL:

Q. Well, Mr. Brown, have you the letters called for on yesterday?
A. Yes sir. The following is the correspondence on prices of cost of replacement as called for on page "796" of William Nixon's deposition:—

EXHIBIT #1.

Herron-Brady Pump and Foundry Co.

CHATTANOOGA, TENNESSEE, 9/11/03.

Professor Chas. S. Brown, Imperial Hotel, Knoxville, Tenn.

DEAR SIR: Yours of the 8th received and contents noted. We wish to state as follows:

The Deane Vertical Pumping engine, which you speak of as being furnished in 1895 at $13175.00 erected. We would consider that this outfit for 1895 a fair price, would be as per dat*to* you gave us $10500.00. Owing to the enormous increase in the price of material and labor from the year of 1895 to the year of 1901. You should add to the above figures about 33⅓ per cent.

For the Worthington Triple Expansion engine of the dimensions you gave, with fittings and fixtures as enumerated. We would consider at the time this was installed that same could be put in at a profit for this. Machinery delivered at Knoxville at a price of $9000.00 would be a profitable one. There would be no material change*d* in the price from the time July 1900 to March 1901, as labor and material changed very little in that short time.

3155 For the Low Servive Filter*ed* Pump and the fittings and fixtures as -numerated as contract in 1894, this outfit delivered in Knoxville at that time would be worth about $2600.00. In March 1901 this outfit would cost you approximately $3600.00 delivered at Knoxville. You can use in all cases your own figures for foundation and erecting. You will readily see that in 1894 and 1895, material and labor were at the lowest ebb in the history of the U. S.

Fire hydrant of the *of the* Frost Jacketed type in 1894 and 1895, would consider $19.00 apiece delivered at Knoxville, and for price, such as Mathew Pattern 4 inch Hub Connection, and for 6 inch, $20.00 each.

Hoping that these figures will be of some benefit to you, and would conclude by saying that our Co. will be glad to take this work to-day at any of the prices above -numerated.

Yours truly,

HERRON-BRADY PUMP & FOUNDRY CO.,
By J. E. BRADY, *V. Pres. & Gen. Man.*

EXHIBIT "2."

The Stilwell-Bierce and Smith-Vaile Co.

DAYTON, OHIO, *Sep.* 29, 1903.

Mr. Chas. S. Brown, M. E., care Vanderbilt University, Nashville, Tennessee.

DEAR SIR: We are obliged by your valued favor of the 24th inst. In compliance with your request, take pleasure in handing you herewith preliminary estimate f. o. b. Works Dayton, Ohio for the machinery described.

Our prices include in each instance Surface Condenser for suction only. We prefer to locate thereon rather than on the discharge main if conditions permit, in order to avoid as far as pos-
3156 sible leakage of joints due to pressure. Will furnish, f. o. b. Works Dayton Ohio, one (1) Horizontal Direct Acting Triple Expansion Pumping engine, size 13 & 24 & 42 x 20 x 20 with surface condenser, Air Pump of the single movement type (not duplex) together with one automatic receiver and pump, with gauges, clock, special lubricators, wrenches &c., Eighty Four Hundred ($8400.00) Dollars net, weight 82,000 lbs. Time of shipment six months.

This size and type of the vertical pattern, with liquid end located 35 ft. below the engine, will cost approximately Ten Thousand, Six Hundred and ten ($10,610.00) dollars net, weight 111,000 lbs.; price not including "I" beams or foundations.

For the smaller engine, we recommend the Direct Acting Compound type, size 12 & 26 x 14 x 20, capacity approximately 2,000,000 U. S. Gals. per day of twenty-four hours; price Four Thousand and fifty ($4050.00) dollars net, including surface condenser, Air Pump and Receiver, also gauges mentioned above, weight 38,000 lbs.

We will send forward as soon as possible general dimension drawings illustrating the types.

Yours very truly,

THE STILWELL-BIERCE & SMITH-VAILE CO.,
By W. H. INGRAHAM,
M'g'r Sales Dept. Pumping M'c'h.

EXHIBIT "3."

DECEMBER 8TH, 1903.

Board of Water Works Trustees, Alliance, Ohio.

GENTLEMEN: I am engaged in the determination of the value of the Water plant of a city in this section as expert for the City, and am seeking information as to the price of Water works material and apparatus, and particularly of pumping machinery.

3157 I note in the "Engineering News" of April 18th 1903 that Henry R. Worthington of New York was awarded contract for a 4,000,000 gallon pumping engine for the sum of $9195.00.

This engine is of the capacity of the engines I am making an estimate upon, and was purchased at the same time, and I therefore am anxious to obtain as full information as possible as to the type of engine you purchased, it appearing from the meagre information I have at present, to be practically a duplicate of the engine of the plant I am placing a value upon.

In order that you may be able to determine the character of the data I need, I will append a description of the engine in question, and ask you to state in what particulars your engine differs from it:

Maker, Henry R. Worthington.
Type: Horizontal, Duplex, Direct Acting.
Steam Cylinders: Triple Expansion, Steam jacketed, condensing.
Size: 15-23-38 by 24.
Water Cylinders inside packed plunger siz- 20 by 24.
Capacity: 4 to 4½ million gallons.
Auxiliaries: Surface condenser on suction main, independent duplex air pump, primary heater, between low pressure cylinder and condenser, jacket pump and receiver, gauge board, 3 gauges and counter.
Water pressure: 100 pounds.
Steam pressure: 100 to 125 pounds.

What is weight of pump purchased by you cost f. o. b. and cost of erection. Any information you may be able to furnish me on this matter will be much appreciated. I trust you will give me this at the earliest possible moment as I must have my data in hand for use the early part of the coming week. If, as soon as you have been able to make comparison you will wire me at my expense either that the two pumps are similar, or are not similar, I shall appreciate your action. Kindly follow with such letter of comments as may seem desirable. Thanking you in advance for your courtesy in this matter, I am,

Yours very truly, CHARLES S. BROWN.

3158 EXHIBIT #4.

Telegram.

DEC. 12TH, 1903.

Chas. S. Brown, Vanderbilt University, Nashville:

Pump very similar Nine Thousand One Hundred ninety-five dollers f. o. b. Alliance with man to erect, foundations &c. furnished by us. Will follow with letter.

ALLIANCE WATER WORKS.

EXHIBIT #5.

Telegram.

DECEMBER 16TH.

To Alliance Water Works, Alliance, Ohio:

No letter about Worthington pump received. Wire me collect Imperial Hotel, Knoxville, differences between your pump and that spec-fied by my letter. Also other particulars asked.

CHARLES S. BROWN.

EXHIBIT #6.

Telegram.

ALLIANCE, OHIO, *Dec.* 17, 1903.

Chas. S. Brown, care Imperial Hotel, Knoxville, Tennessee:

Four Million gallons size steam sixteen twenty-five forty-two water seventeen one-half by twenty-four, brass lined, water pressure one fifteen to one forty steam ninety to one hundred other conditions same. Cost foundations erection about $2000.00. Letter gone forward.

ALLIANCE WATER WORKS.

3159 EXHIBIT #7.

CITY OF CLEVELAND,
DEPARTMENT OF PUBLIC SERVICE, *December 7th*, 1903.

Charles S. Brown, M. E., care Imperial Hotel, Knoxville, Tenn.

DEAR SIR: My inadvertence to your inquiry of December 1st which came duly to hand, requires an apology, but business has been so pressing that it was impossible for me to find an opportunity of responding sooner. I trust however that the data will prove serviceable even at this late date.

The following are the prices of the equipment you inquire about for the year 1901, the contracts dating from the 1st of the year in each case:—

Pipe, 3 inches to 60 inches diameter, $21.60 per ton (of 2000 lbs.) delivered on streets.

Special castings, 3 inches to 16 inches diameter $34.50 per ton, delivered on streets.

Special castings, 20 inches to 60 inches diameter, $53.50 per ton, delivered on streets.

Hydrants, with independent nozzle gates:

4 inch $21.83.

6 " $31.83 f. o. b. cars in Cleveland. Hydrants have two nozzles each, and are 6½ feet long from surface of ground to bottom of hydrant.

Valves: 3 inch $6.50.
4 " 6.80.
6 " 11.00.
8 " 16.50.
10 " 23.25.
12 " 29.85.
16 " 60.00.
20 " 122.50.
24 " 220.00 all f. o. b. cars.

Cleveland, Ohio.

3160 Valve boxes were paid for at the same price as special castings, viz: $34.50 per ton.

Lead and jute ranged in price from 4c. to about 4¾c. per pound.

The pumping engines you inquire about are of much smaller capacities than any which we have in use, and therefore cannot give you any data about these. I would refer you, however, to the Holly Manufacturing Company of Lockport, N. Y. and the Allis-Chalmers Co. of Chicago, Ill. who are two of the largest pump manufacturers in the country.

I am enclosing you a copy of our specifications for cast iron pipe and special castings for the present year, but they are practically the same as they were in the year 1901.

Very truly yours, EDWARD W. BEMIS,
Supt. of Water Works.

EXHIBIT #8.

Copy From Engineering News of March 21st, 1901.

Hydrants, Valves, Pipe, &c.

SCHENECTADY, N. Y., *March* 7, '01.

We are informed that the following bids were received by the Water Commissioners March 7th for furnishing hydrants, gate valves and gate boxes, cast iron pipe and special castings (bids on two latter per short ton) and for laying same,—awards M. J. Drummond & Co. for valves, boxes and hydrants; C. Millar and Sons, Pipe and castings, and J. H. Clements for laying same.

WILLIAM J. MARLETTE, *Sec'y.*

3161

Bidder.	Hydrants.	Gate valves.			12 in. Boxes.			Lump bid.	
Number.....	50.	4 in. 50.	6 in. 30.	8 in. 10.	4.	94.	Total.		
Hawkins Co.....	$19.00	5.50	9.50	13.00	25.00	2.85	2,607.40		
Ludlow Valve..	22.45	6.50	10.60	16.00	28.85	3.00	2,379.30		
Chapman " Co..	21.08	8.14	11.72	18.87	37.32	.....	2,151.58	..... .	3.60
Sweet & Doyle.....	.....	6.00	9.75	15 50	28.00	2.85	1,134.80		
R. D. Wood & Co....	21.50	6.65	10.00	15.75	29.00	2.35	2,391.80		
Kennedy V. Co.....	22.75	5.75	9.95	15.00	29 50	3.25	2,377.		
Rensselaer V.	21.00	6.95	11.00	16.50	32.00	2.85	2,506.40	2,125	
Drummond & Co....	21.80	5.45	8.55	13.75	25.60	2.35	2,079.80	1,962.36	
Eddy Valve Co.....	23.50	6.60	11.00	17.00	32.00	3.00	2,415.	2,121	

For Cast Iron Pipe and Special Castings.

Bidder.	Pipe. 12 in.	8 in	6 in.	4 in.	Specials.
Ft...	3500	3000	100000	1000	10 tons.
Drummond & Co.....	$21.25	$21.50	$21.50	$22.80	$45.00
R. D. Wood & Co.....	21 87	21.87	21.87	21.87	45.00
J. Fox & Co.....	21.00	21.00	21.80	21.80	42.00
U. S. C. I. P. & F. Co....	20.70	20.70	20.70	20.70	
C. Millar & Sons.....	20.65	20.65	20.65	20 65	45.00

Laying Water Mains.

Beckwith Bros	$4,625	4″ = 22c.	6″ = 24c.	8″ = 26c.	12″ = 35c.
Frank Beech	4,310	18	23	26	30c.
Joseph H. Clements. ..	4,300	25	22½	25	30c.

M. J. Drummond & Co., 192 Br'dw'y, N. Y.

EXHIBIT 8/2.

Telegram.

SCHENECTADY, N. Y., *Dec.* 12, '03.

Prof. Chas. S. Brown, Vanderbilt University, Nashville, Tennessee:

Prices bid on water works material all verified except few cents. Descriptions not available here, but have telegraphed Drummond to telegraph you. Am writing.

OLIN H. LANDRETH.

3162 EXHIBIT 8/3.

STATE OF NEW YORK,
WATER STORAGE COMMISSION, ALBANY,
UNION COLLEGE, SCHENECTADY, N. Y., *Dec.* 12, '03.

Professor Chas. S. Brown, Vanderbilt University, Nashville, Tenn.

MY DEAR SIR: Your letter of the 8th inst. asking for certain information concerning a contract for Water Works material of March 7th 1901 reached me late last night on my return from Albany. This morning I communicated with the Water office and found that no letter had been received from you, it evidently having gone to the residence of the Supt. who is being kept at home by the serious illness of his mother. The clerk was very kind to offer all possible information and so I went down and went through the records; I found a minute of the bids received but in the absence of the Supt. we could not get at the specifications nor records as to where the hydrants &c. were to be used. The copies of the prices bid was substantially correct, as you sent it, and I have added in ink the few changes to make it conform to the office record. Being entirely unable to ascertain the make or dimensions of materials purchased

at that letting, I telegraphed to Messrs. M. J. Drummond & Co. of #192 Broadway New York as follows:—

"Please telegraph collect Schuermann and Brown, engineers, Nashville, Tennessee, the make of valves and make, size, depth, number and size nozzles of hydrants furnished by you to Schenectady March Nineteen Hundred one.

(Sig.) OLIN H. LANDRETH.

I also telegraphed you at the same time as follows:—

3163 "Prices bid on Water Works material all verified except few cents. Descriptions not available here, but have telegraphed Drummond to telegraph you.

(Sig.) OLIN H. LANDRETH."

I regret the inability to settle the questions here, but trust you have received the desired information from New York.

Your letter recalled very pleasant recollections of our residence for many years at Vanderbilt, and of our friends in the South. I should be glad if you would remember us to such as you may meet who may remember us. While life here is more active and a given effort will secure greater results, personal associations are less agreeable than we found them in the South in many ways.

I shall hope to meet you and your colleagues, Professor Schuermann, whom I had the pleasure to recommend as my successor, though I had never met him. I am, Dear sir,

Very truly yours, OLIN H. LANDRETH.

EXHIBIT 9.

DECEMRER 7TH, 1903.

G. R. James, Sec'y Board of Water Works Trustees, Cuyahoga Falls, Ohio.

DEAR SIR: I am sending you herewith copy of record from the Engineering News, New York City, stating prices received at the letting February 2nd, 1901 for cast iron pipe and specials. I am at present engaged in collecting data as to the cost of water works material of date March 31 1901 for the purpose of estimating the value at that date of a water works in litigation in this vicinity.

I shall be glad if you will inform me, by comparison with
3164 your records, if the prices here stated are correct, whether the ton was the long ton of 2240 pounds, or the short ton of 2000 pounds, and such prices on other material as was received at the letting of March 15th on other material. I am desirous of obtaining prices on gate valves, hydrants, both single and double nozzle, and both 4 and 6 inch connections, with statement as to depth of bury of the hydrants, name of maker and number purchased of each size. I shall very much appreciate the courtesy if you will give me such information as you may have available on these matters.

EXHIBIT 9-2.

Vanderbilt University, Nashville, Tennessee.

School of Mechanical Engineering—Charles S. Brown, M. E.

Copy From Engineering News, March 7th, 1901.

Water Pipe and Castings, Cuyahoga Falls, Ohio.

G. R. James, Sec'y Water Works Trustees received the following bids Feb'y 2nd, 1901, for furnishing 712 tons of cast iron water pipe and 14 tons of castings for the proposed new works; bids for further material and pipe laying being asked until M'c'h 15th.

L. E. CHAPIN,
Consulting Engineer, Canton, Ohio.

Bidder.	4" pipe. 88.44 tons.	6" pipe.	Specials.	Totals.
Jas. B. Clow & Sons, Chicago.....	$21.40	$20.40	$40.00	$15,176
Massillon, O., Iron & Steel Co.....	20.89	19.89	47.50	14,918
U. S. C. I. Pipe & F'd'y Co.....	20.00	20.00	44.50	14,806
M. J. Drummond & Co., N. Y.....	23.10	22.60	45.00	16,769
Spera & Co., Ag'ts, Pittsburg.....	22.20	22.20	40.00	16,370

CUYAHOGA FALLS, O., *Dec.* 11, 1903.

Chas. S. Brown, Nashville, Tennessee.

DEAR SIR: Replying to yours would — that the prices on pipes are correct and same were bought of the U. S. C. I. Pipe &
3165 Foundry Co. at $20.00 for 2000#. Hydrants were bought of the Cayota Wheel & Foundry Co. of Sayres, Pa. I have no means now of telling exact size or number, as I am not connected with the Board now. For further information address "James Lostetter, Clerk Trustee of Public Affairs, Cuyahoga Falls, O.

Yours truly, G. R. JAMES.

EXHIBIT 10.

DECEMBER 7TH, 1903.

The City Engineer, Oklahoma City, Oklahoma.

DEAR SIR: I am collecting information to guide me in placing a value on Water Works of date March 31st 1901, and on reference to the Engineering News, find that your City purchased of the Bismark Iron Works, Birmingham, Alabama, during the first of the year, stated for $23.70 per ton, and special for $44.50. Will you kindly inform me as to the correctness of this statement, the quantity purchased and the quantity and prices paid for other supplies purchased at approximately the same time, valves, boxes, hydrants (with size of nozzles and number, size of connections and

depth of bury) and of such other materials, including pumps, that you may have purchased at the same time.

Thanking you in advance for such information as you may be able to give me, and asking that you reply at the earliest possible moment, as my report must be made early next week, I am,

Yours very truly, —— ——.

3166 EXHIBIT 10–2.

OKLAHOMA CITY WATER DEPARTMENT,
OKLAHOMA CITY, OKLA., *Dec.* 15, 1903.

Chas. S. Brown, Nashville, Tennessee.

DEAR SIR: Your letter to the Engineer of this city was handed to me for answer, he not having the desired information, as these two departments are entirely separate.

We made a contract in February 1901 for five hundred tons of pipe ranging in size from 4″ to 10″ for which we paid $23.75. Specials at 2¾ cents per pound. All this f. o. b. Oklahoma City. This was an extremely low price owing to the fact that the iron market was off at that time, and very few works were in condition to build at that time. We purchased 50 Ludlow Fire Hydrants 4″ inlet 2½″, Double Discharge, length 4′ for $21.15. The price made on valves ranged from $5.60 to $22.80 depending on size. Boxes and bases at $3.00 each delivered. Lead at that time was worth $4.½.½; Hemp 5 cents, excavating and refill 10 cents. We purchased no pumps at that period. Ref-r you to the Henry R. Worthington Co. St. Louis for prices prevailing on all classes of pumps.

Yours truly, D. A. JOHNSTON,
Supt. Water Dept.

EXHIBIT 11.

DECEMBER 7TH, 1903.

The City Engineer, Toledo, Ohio.

DEAR SIR: I am at present investigating the cost of material for water works construction of date March 21, 1901, for the purpose of placing a value upon a plant of that date, and note by the
3167 Engineering News of March 7th that Toledo purchased of the U. S. Cast Iron Pipe & Foundry Co. 287 tons of 12 inch water pipe at $23.25 per ton. Will you be so kind as to refer to your records and state whether this item is correct, also give the date of letting of this contract, and whether the ton was of 2240 or 2000 lbs.

Will you also note whether any specials were purchased about this date, or valves, hydrants and similar material, giving me price of each size, quantities purchased, date of purchase &c. State number of nozzles for hydrants, size of connections and depth of bury.

Thanking you in advance for this courtesy, I am,

Yours very truly,
—— ——,
Consulting Engineer.

EXHIBIT 11–2.

BOARD OF PUBLIC SERVICE,
TOLEDO, OHIO, *Dec. 12th*, 1903.

Chas. S. Brown, C. E., Vanderbilt University, Nashville, Tenn.

DEAR SIR: Replying to yours of December 7th, the quotation you mention is quite correct. All of our purchases are ton of 2000 lbs. We did not buy any other material at or near that time.

Yours truly, T. R. COOK, *Supt.*

3168 EXHIBIT 12.

OFFICE OF CITY ENGINEER,
LOWELL, MASS., *Dec.* 12, 1903.

Chas. S. Brown, Esq., Nashville, Tennessee.

DEAR SIR: Yours of November 7th received, and in reply would say in the Spring of 1901 we purchased, as you say, 200 tons of 6" pipe from M. J. Drummong, N. Y. for $24.15 per gross ton f. o. b. cars Lowell. This pipe came from Lynchburg, Virginia. We did not buy many specials at just *at* that time, but would advise you to get a catalogue for that year from different manufacturers and ask them to give you the discount that they gave their customers that year, which seems to me to be the best way to get at what you are looking for.

Yours truly, GEORGE BOWERS,
City Engineer.

3169 Letter marked Exhibit #1 to my deposition of date September 11th, 1903 from Herron-Brady Pump and Foundry Company, Chattanooga, Tennessee, gives prices on equivalent of Deane Pumping Engine for 1895 and for 1901, on equivalent of Worthington Tripple Expansion Engine for March 1901. On pump for high service at Filter Station in 1894 and in 1901. On fire hydrants in 1894 and 1895 and 1901.

Exhibit #2 letter of The Stilwell-Bierce and Smith-Vaile Co., Dayton, Ohio, September 29th, 1903, price on Horizontal Tripple Expansion Pumping Engine of the same character as the Worthington engine in use at the Knoxville Water Works.

Exhibit #3 Alliance Ohio Water Works, purchase of March 30th, 1901 from Henry R. Worthington, of pumping engine, practically a duplicate of the present Worthington engine at Knoxville Water Works, including services of erecting engineer, said correspondence being marked Exhibits #3, #4, #5 and #6.

Exhibit #7 letter of Edward W. Demis, Superintendent of Water Works, City of Cleveland, Ohio, relating to hydrants and other appliances and supplies, there being two sheets.

Exhibit #8, copy of letter of C. S. Brown to Olin H. Landreth, Schenectady, New York, and Landreth's reply both by letter and telegram—relating to hydrants, valves, &c.

Exhibit #9, copy of letter of C. S. Brown to G. R. James, Secretary of Board of Water Works Trustees, Cuyahoga, Falls, Ohio and reply of G. R. James relating to hydrants, &c.

Exhibit #10, copy of letter of C. S. Brown to City Engineer Oklahoma City, Oklahoma Territory and the reply of D. A. Johnston, Superintendent of Water Works, relating to hydrants, &c.

Exhibit #11 letter of C. S. Brown to the City Engineer, Toledo, Ohio and the reply of T. R. Cook, Superintendent of Water Works, including inquiry as to hydrants, &c.

Exhibit #12, letter of George Bowers, City Engineer of Lowell, Massachusetts, in reply to a letter of inquiry written by C. S. Brown relating to valves, hydrants, &c.

3170 Q. Now is that all the correspondence Mr. Brown?

A. Yes sir that is all you called for except that Filter letter, which I believe you don't call for now.

Q. Yes sir, I believe I understand that you don't care to put that in for reasons which you consider proper. This, I understand, includes all the correspondence with the exception indicated, which was had, or received either by you or Mr. Nixon on the subject?

A. I don't recollect any other letters Mr. Caldwell which relate to these subjects called for, which were used at all either in the determination of prices in this replacement account or in corroboration.

Q. You spoke yesterday of having corresponded with the authorities of certain cities in order to get pipe cost?

A. Yes sir.

Q. Without calling for any further correspondence, I would be glad if you would give the names of those cities so far as you can?

A. The following is the list of cities written, in the matter of the determination of costs of pipe contracted for within two months on either side of March 31st 1901 where records of pipe sales had been made.

Nashville, Tennessee, March 16 1901, $4000.00 worth approximately 212 tons of pipe at $18.40 per ton f. o. b. Nashville.

Cleveland, Ohio, January 1901, pipe for the year (no quantities stated) at $21.60 per ton.

January 12th 1901, City of Middletown, N. Y. 2460 tons at $20.90 per ton.

February 2nd, 1901, Cuyahoga Falls, Ohio, 712 tons at $20.00 per ton.

February 8th 1901, Troy, N. Y. 2190 tons at $20.19 per ton.

February 8th 1901, Oklahoma City $12,000 worth of pipe

3171 approximately 506 tons at $23.70 per ton.

February 14th 1901 New York City $16,380 worth, or about $800.*00* tons at $20.40 per ton.

March 7th 1901, Schenectady New York 600 tons approximately of 12 inch pipe at $20.65 per ton.

March 7th 1901, Lowell, Massachusetts 200 tons at $25.00 and $21.56 per ton.

March 7th 1901, Toledo, Ohio 287 tons at $23.25 per ton.

March 21st 1901, Quincy, Mass. 400 tons at $20.98 per ton.

March 27th 1901, Milwaukee, Wis. 1600 tons at $21.73 per ton.

April 3rd, 1901, Everett, Mass. —— tons at $21.65 per ton.
April 16th, 1901, Reading, Pa. 700 tons at $21.70 per ton.
April 30th 1901, Youngstown, Ohio, 300 tons at $20.25 per ton.
March 7th 1901, Brockton, Mass. 275 tons at $21.60 per ton.
February 18th, 1901 Augusta, Ga. —— tons at $20.80 per ton.
February — 1901 Los Angeles, Cal, 1776 tons at $29.50 per ton.
February 8th, 1901, Minneapolis, Minn. 1610 tons at $23.10 per ton.

The total of recorded tons of 14,628 at an average price of $21.68.

—. Professor Brown, were these prices gotten by correspondence or by the published reports of the cities or of the water companies in the cities you have named?

—. All of these cities were written—some of them several times; that of Nashville, Tennessee, I think, was tendered by Mr. Nixon in his deposition; that of Cleveland Ohio is included in the letter handed you by me as Exhibit #7. Middletown, N. Y. was a trade report, and no reply was received from repeated inquiries. Cuyahoga Falls, Ohio, is included in my exhibit #9. Troy, New York is a trade report. No answer was received from inquiries. Oklahoma City is included in my exhibit #10. New York City is a trade report. Schenectady, New York is included in my ex-
3172 hibit #8. Lowell, Mass. is included in my Exhibit #12. Toledo, Ohio is included in my exhibit #11. Quincy, Mass. is a trade report. Milwaukee, Wisconsin, is a trade report. Everett, Mass. is a trade report. Reading, Pennsylvania is a trade report. Brockton, Massachusetts, it is my impression that I had a letter from these people, which may not be exhibited. I don't remember that it is in those exhibits, but I am under the impression that I received a letter from them. Augusta, Georgia is a trade report; Los Angeles, California a trade report and Minneapolis, Minnesota a trade report.

Q. By trade report, you mean such record as the Engineering Record or Engineering News?

A. I think all these records were obtained from the Engineering News.

Q. Is that true of the one from Augusta, Georgia?

A. That includes the one from Augusta, Georgia, if I am not mistaken.

Q. Have you the date of the copy of the Engineering News referring to Augusta, Georgia?

A. Yes sir.

Q. I wish you would give the date of the paper to the stenographer, if you please?

A. It is on page "87" of the Supplement of the "Engineering News" of March 7th 1901.

Q. In getting these data from the trade reports, did you attempt an average of the report upon prices, or did you select particular ones?

A. I think that I cleaned up practically all the pipe prices that my attention was called to between say January 1st and April 30th

1901, excepting such prices as were complicated by being included with other contracts.

Q. In calling for prices of the pumping engines, did you,
3173 in any of your correspondence specify the duty required of the engines?

A. I did not; the cylinder dimensions in each case were specified and the conditions—that determined the duty definitely.

Q. On Exhibit #8 there are certain figures made in ink, apparently supplementing the typewritten figures; whose are the ink figures?

A. The ink figures were made by Dr. Olin H. Landreth of Union College, who is connected with the Water Storage Commission of New York City, a gentleman whose acquaintance I have who was formerly at Vanderbilt University, and who got these verified--the copy made by me from the Engineering News of March 21st 1901, and who says in his letter: "The copy of the prices bid was substantially correct as you sent it, and I have added in ink the few changes to make it conform to the office records"

Q. You referred yesterday to vitrified brick on the river side of the pump station, and as I recollect said that Mr. Kimball told you that they were put there for purely ornamental purposes. Are you not mistaken in attributing that statement to Mr. Kimball?

A. I am under the impression that I recollect that conversation quite clearly, and that was the substance of the conversation—possibly not his very words.

Q. You were asked yesterday: "you undertake to replace substantially the plant constructed prior to March 31st 1901 under the conditions stated in Mr. Wheeler's estimates" to which question you answered, "yes" I wish you would explain your meaning a little more fully as stated in that question and approved in your answer?

A. In reply to that question Mr. Caldwell, as you will not- to the previous question asked in my testimony of yesterday, we were talking particularly about cast iron pipe, which when I
3174 replied to the following question was chiefly in my mind, but I would say that in regard to the rest of the plant, that the idea was to have it substantially conform to the requirements as laid down in the estimates of Mr. Wheeler so as to get a reasonable comparison; at the same time there were some things eliminated, which seemed to us as not essential to a properly designed plant—not essential for the operation, or from aesthetic stand-points. We put vitrified brick in the filter house, because the filter house was located in the central portion of the city, and it was entirely fitting that it should be neat and ornamental in design. The pumping station was estimated upon substantially of the design as at present. There was omitted from the pump station the vitrified brick and some other similar items.

Q. What did you substitute for enamel brick at the pump station?

A. The interior work was all of common brick.

Q. The particular point I had in mind was this; if we assume that there are, say 17,000 feet of pipe in the city covered by brick street

pavements, how could you replace that pipe under the brick pavements without estimating also the cost of the restoration of the pavement?

A. If the pipe you mention had been put in place by taking up the brick pavement and afterwards restoring it, I should certainly have estimated upon that item of expense, but such is not the case, as I understand.

Q. Well you contemplate the erection of an entirely new plant?

A. We simply made an estimate upon the cost of a plant of substantially the same character as the plant that existed March 31st 1901.

Q. What was it you said about the conditions under which this plant was estimated upon in that portion of your last answer which we agreed should be erased?

3175 A. The estimate of replacement represents the cost of construction of a plant of substantially the same character as to extent, capacity and economy as that which existed March 31st 1901. The conditions of streets under which pipe was laid to be however those under which pipe was actually laid.

Q. Then if the conditions of the streets under which the pipe was actually laid are proper to be considered, does it not necessarily follow that all the conditions under which all the other work was actually done must be considered, and you- replacement estimate applied to them as well as to the actual conditions of the streets when the pipe was laid?

A. I have endeavored, as far as practicable, to anticipate such conditions, but our estimate is based upon the construction of a plant under such anticipated conditions.

Q. You say that you have endeavored to anticipate actual conditions, as I understand you?

A. Yes sir.

Q. Do you mean that you have endeavored to restore actual conditions to base your estimates upon those actual conditions at the time of actual construction, as you understand, and have restored them?

A. I endeavored to determine, as nearly as possible from the records which were given me here by Mr. Kimball, and from all the data obtainable what the conditions would have been if no plant had existed at the river station, and no water pipes laid, and have based the estimate upon the construction of a plant at once and by contract complete.

Q. With reference to the time and conditions when each particular item of construction was made?

A. With reference more particularly to March 31st 1901, and the city of Knoxville without a water plant, and requiring one of the same extent as the one in actual use at that time; all pipe to be laid however under the conditions under which it was

3176 actually laid—that is, no pavements and but little macadam.

Re-direct examination by G. W. PICKLE:

Q. Now, in regard to the Worthington engine at Alliance, Ohio referred to in one of the letters that you have filed; at what date and price was it furnished?

A. This engine was purchased on the 30th day of March 1901 at the price of $9195.00 f. o. b. Alliance, Ohio, with man to erect.

Q. At what price did you place these Worthington engines in your replacement estimate?

A. $9000.00 f. o. b. Knoxville, Tennessee with 5 per cent added, or $9450.00.

Q. State whether or not the Alliance, Ohio engine is the same engine that is embodied in your replacement plant?

A. The engine at Alliance, Ohio has steam cylinders 16 and 25 and 42 and water cylinders 17½ by 24 inch stroke. The Worthington engine at the plant of the Knoxville Water Company has steam cylinders 15 and 29 and 38 with water end plunger 20 inches in diameter by 24 inch stroke. The two engines are built by the same builder, are substantially of the same design, with the same appurtenances, the steam cylinders of the Alliance engine being larger than those of the Knoxville engine, the water cylinders smaller, by about 2½ inches in diameter. The Alliance engine operates against a pressure of 115 to 140 pounds. It approximates however to performing the same service; it does not pump so much water—it hasn't so much piston displacement, but it pumps it against a higher head. In my opinion these two pumps would have practically the same water ends—that is the same in dimensions—slightly heavier perhaps in the Alliance engine ends, but bushed down from 20 inches in diameter to 17½ inches. The cost of construction of engine of the Alliance type would, in my opin-
3177 ion, be some higher than the cost of the Worthington engine. The Alliance engine has also brass lined water cylinders. I have no information as to whether this is the case with the Knoxville engine or not, but in case they are not brass lined, the Alliance engine would be the more expensive by a considerable amount.

Q. How many cities have you set out there in your list of sales of pipe?

A. Nineteen.

Q. Were those actual sales made at competitive biddings? for delivery f. o. b cars at the place of use?

A. Those were the conditions where-ever definite information was obtained, either by letter or by the Trade Reports from which this compilation was made. The city of Cleveland, Ohio, contracted for its year's supply of pipe, whatever that might be, at $21.60 per ton delivered on the streets, so the letter from the superintendent of the water works states.

Q. Now from what pipe companies were those purchases made. You need not go through the list of cities one by one, but state how many from each company?

A. The United States Cast Iron Pipe and Foundray Company made 10 of these sales at an average price of $21.23 delivered, which in case of the Cleveland pipe included also cartage—delivery on the

streets. Charles Millar and sons, agents made two sales, 3060 tons at an average price of $20.78. M. J. Drummond and Company, New York City, made two sales amounting to 475 tons at an average price of $21.58. Bismark Iron Works, Birmingham, one sale of 506 tons at $23.70,—being out in the Indian Territory. John Fox and company one sale of — tons at $21.65. Camden Iron Works, one sale of 700 tons at $21.70.

Q. Did the prices you name include the freights to the places where the pipe was delivered?

A. They included in all cases, as is common practice, the delivery f. o. b. cars, or in case of Cleveland, Ohio, free on the streets, at the prices named.

3178 Q. Now you state that some of these sales, or perhaps most of them, were taken from Trade Reports, and that in every instance you wrote to the city authorities who made the purchase, and in some of the instances, perhaps most of them, you have stated that you received replies and in some others you have not. I will ask you whether or not in cases where you received answers from the city authorities they were confirmatory of the statement of the Trade Report as to prices, &c., or substantially so?

Mr. CALDWELL: We object to the question because already in by documentary evidence. The letters are here and as our investigation and argumentative response to that will have to be from the letters. I don't think a statement should be put in the record interpreting documents that are already in.

COMMISSIONER: Could you state (directing remarks to witness) that in your judgment the letters received do confirm these prices?

The WITNESS: I can state that of all letters to which I received replies, the Trade Reports were confirmed excepting in one case, in which the price on hydrants and a few other items varied a few cents—that is, only the even dollars had been apparently given in the reports.

Q. Where is the sales office of the United States Pipe and Foundry Company located?

A. They have sales offices in St. Louis, in Chattanooga, in Chicago, in Cincinnati, in New York, I think, and at various other cities. Where their main sales office is I cannot say and have no personal opinion.

Q. Now have you eliminated from the prices stated in these several sales the matter of freight to those places and substituted

3179 the Knoxville freight instead and ascertained what upon that basis would have been the price of pipe at Knoxville at that time?

A. I have done so.

Q. What would have been the price at Knoxville according to that method?

A. The average price, by that method at Knoxville, is almost exactly $18.00.

Q. Now Professor you have said there were some statements in the Trade Reports which were complicated with other matters; were those actual sales or mere bids of contractors?

A. They were bids of contractors for doing work, building filter plants and water works and works of a similar character, in which cast iron pipe appeared as one of the items. It is customary in making such bids to call for specific bids on certain portions of the work, to-wit: Cast iron pipe, rock excavation, earth excavation, concrete, manholes and other similar items. In looking over such contract bids it is evident to the most casual observer that the bidder is covering up his prices in various ways—one cent a cubic yard for concrete, where he knows how much is going in and don't care to have his price known—cast iron pipe perhaps $50.00 or $60.00 a ton—manholes from one cent to $100.00, &c, these different items varying with different bidders' estimates by very wide margins, but when the quantities are taken into consideration at the various prices, the sum total of the prices at which the various contractors will perform the given piece of work are marvelously close together. Such contract prices were not considered in this compilation; only such prices and such sales as were simply of pipe alone, or pipe in connection with hydrants, valves, &c, in which the contracts were let on each separate item separately—that is, where one con-
3180 tractor would get the (contract) for cast iron pipe and specials, and another the valves and perhaps the third the hydrants. Only such sales were considered in this list, and the prices, considering the varying distances from pipe foundries, for instance Los Angeles, whose nearest pipe foundry is at Denver, Colorado, and who have to obtain competative prices from New York City by water, or from Chattanooga or Birmingham or some other points in this vicinity; points in Massachusetts, whose nearest pipe foundry is at Lynchburg, Virginia, if I am not misinformed—possibly there is one at Philadelphia in R. D. Wood and company—Schenectady, New York, which I am informed is a competative point for pipe from Chattanooga as well as Philadelphia and Lynchburg, Virginia—Milwaukee, Wisconsin and Minneapolis and similar points all show when corrected for difference in freight rates, a remarkable uniformity in cost of pipe either at the foundry or at Knoxville. It will be noted that the highest price set upon pipe is at Los Angeles at $29.50 a ton; the lowest price at Nashville, Tennessee, at $18.40, a place in which the freight rate is only 10 cents more from Chattanooga than the rate to Knoxville. The rate from Nashville as I understand is 20 cents less from Chattanooga, than the rate from Chattanooga to Knoxville.

Q. Mr. Brown, Mr. Wm. Wheeler and Mr. Kimball have been present here during your examination, have they not?

A. I think during the most of it.

Re-cross examination by Mr. CALDWELL:

Q. Mr. Brown where did the Los Angeles people buy their pipe?

A. The Martin Pipe and Foundry Company.

Q. Where is that located?

A. Denver, Colorado, I think.

Q. Now what is the freight rate from Denver to Los Angeles?

3181 A. The freight rate from Denver to Los Angeles, I do not know sir, but I know that the Martin Pipe and Foundry Company would add to the price of their pipe whatever the freight rate was up to a competitive point.

Q. Well what is the rate from Chattanooga here?

A. $1.60.

Q. What is it from Chattanooga to Lynchburg?

A. I do not know sir.

Q. Well what is it from Chattanooga up to those New England towns you have been telling about—give us the rate to Lowell, Massachusetts?

A. $6.00.

Q. From Chattanooga to Lowell?

A. Yes sir. To Quincy, Massachusetts, $6.00. To Everett, Massachusetts, $6.00, and practically to all places up in that section is the same thing; Schenectady, New York, $5.40; New York City, $5.40, Middleton, New York, $5.40, Troy, $5.40 and Oklahoma City, in the other direction, $8.00.

Q. Supposing that the Massachusetts cities referred to, you bought from eastern foundries, what freight rate have you allowed them?

A. The cheapest iron in this country is produced in the South. It has to compete with the iron of the east. There is a differential in freight rates of practically $3.00 from this section to tide water. Our pipe foundries ship pipe up to Massachusetts and New York in direct competition with the pipe foundries of the east, and are able to do it because they have less expensive material. It is apparent from the tabulations that we have made that the towns or cities located near the southern pipe foundries get the benefit of the cheap rate, as for instance Cuyahoga Falls, Ohio, where $20.00 per ton was paid by actual record, with a rate of $3.65 per ton from Chattanooga, which would be equivalent to $17.95 on cast iron pipe
3182 sold with the same margin of profit to the pipe makers as they obtained on their Cuyahoga Falls sale.

Q. Now Professor I don't understand that you have approached my question yet?

A. I know nothing about the freight rate from the eastern foundries to those points named, but the eastern foundries add the difference in freight rates between the eastern and western points to the price of their iron.

Defense closes.

Stipulation of Counsel.

1st. It is stipulated by counsel that subject to exception for competency or irrelevancy, either party to this cause may, on the hearing, read any parts of the printed record in cause No. 18,354 in the Supreme Court of the United States at Washington, D. C., said cause No. 18,354 being the suit of the Knoxville Water Company *vs.* The Board of Mayor and Aldermen of the City of Knoxville, and upon an appeal either party may have copied into the transcript such parts

of said printed record as shall have been offered and admitted as evidence on the hearing in this cause.

2nd. Either party may, subject to like exception read on the hearing of this cause in evidence the opinion of the Supreme Court of the United States in said cause No. 18,354 as said opinion was finally amended by said Supreme Court; also the judgment or decree of the Supreme Court of the United States.

3183 3rd. The Plaintiff, the Knoxville Water Company, may, subject to exception, for irrelevancy and incompetency, present in evidence in this cause, the following copies of papers from cause No. —— in the Chancery Court of Knox County, Tennessee, which was appealed to the Supreme Court of Tennessee, and in said Supreme Court, heard on the 18th day of October, 1887, and if any of the papers have been lost, and are recorded in the Minutes of the Courts, copies of same from said Minutes, duly certified, may be presented as herein stipulated,—said papers and copies are as follows, to wit:—

(1) Pleadings.

(2) The Decree of the Chancellor.

(3) The Assignments of Error on appeal to the Supreme Court.

(4) Judgment entries on the records of the Supreme Court.

(5) The judgment of the Supreme Court over-ruling the motion to rehear and said portions of said record may be filed in this cause without a complete transcript of the records in said Chancery cause.

The portions of the printed record to be offered, to be designated by the time the proof in the cause is closed, and copies of papers to be filed in same time.

3184 4th. The defendant may, subject to like exception, read the Decree of the Supreme Court of the United States, rendered on the hearing in that court, and also of the Supreme Court of Tennessee, after the case was remanded, which are accordingly filed.

The defendant by its counsel offers to give notice herein as evidence, subject to the exception above stated, the following portions of the printed record of cause No. 212 of the Supreme Court of the United States.

(1) All pleadings in said cause before the Recorder of the city of Knoxville, and in the Circuit Court, and all motions, orders and judgments therein in both of said courts, found on pages 1 to 18 inclusive of said transcript:

(2) The opinion of the Supreme Court of Tennessee and the judgment of said Supreme Court and partition of Knoxville Water Company for writ of error, with the writ of error granted thereon, found on pages 209 to 233 inclusive of said transcript:

(3) An ordinance of the Mayor and Aldermen dated May 17th, 1895, purporting to regulate or prescribe the rates of the Water Company found on pages 49 and 50 inclusive of said transcript:

(4) The charter of the Beaumont Water Company found on pages 57 to 61 inclusive of said transcript:

(5) The contract between the Lonsdale-Beaumont Water Com-

pany and the city of West Knoxville found on pages 62 to 70 inclusive of said transcript:

(6) The contract between Wheeler and Parks and the
3185 town of North Knoxville found on pages 70 to 78 inclusive of said transcript.

(7) Deed from Wheeler and Parks to Knoxville Water Company for the North Knoxville plant, found on pages 78 to 80 inclusive of said transcript.

(8) Deed of Lonsdale-Beaumont Water Company to the Knoxville Water Company for the Lonsdale-Beaumont or West Knoxville plant, found on pages 80 to 83 of said transcript.

Counsel for defendant agrees that the original charter may be filed, if not already in this record.

The further taking of depositions in this cause was adjourned until January 5th, 1904, at 1:30 P. M.

3186 *Plaintiff's Rebuttal.*

JANUARY 5TH, 1904.

The further taking of depositions was adjourned until Monday, January 11th, 1904, at 1.30 P. M.

MONDAY, *Jan'y 11th*, 1904—1.30 p. m.

The further taking of depositions resumed.

NISBET WINGFIELD, next witness called on behalf of Complainant being duly sworn testified as follows:—

Examination by Mr. CALDWELL:

Q. Mr. Wingfield, please state your name?
A. Nisbey Wingfield.
Q. How old are you?
A. I am forty-two.
Q. Where do you reside?
A. Augusta, Ga.
Q. What is your present business?
A. Civil Engineer; I am at present employed as City Engineer by the City of Augusta.
Q. Where were you educated?
A. At the University of Tenn.
Q. What years were you at the University of Tennessee?
A. The years 1878, 1879 and 1880.
Q. Did you attend any other school after you left the University?
A. No sir.
Q. What course did you take in the University?
A. I took a special engineering course under Prof. Lockett.
Q. Samuel A. Lockett?
A. Yes sir.
Q. Where did you begin the practice of your profession?

A. On the Texas Pecific R. R. in Texas, going there within a week after I left the College.

Q. You are aware that this is a case for the determination of the reasonableness of the rates charged consumers for water by the Knoxville Water Company?

A. Yes sir.

Q. Do you consider yourself qualified from your experience to give testimony in such a case?

A. I do.

3187 Q. I would ask you to state fully the experience that you have had as an engineer, which you think qualifies you to give testimony in this case as an expert witness.

A. I have been in constant engineering practice for twenty three years, and have been a member of the American Society of Civil Engineers for ten years, and was compelled by the constitution of said society to have been in continuous charge of important engineering work for ten years previous to the date of my application before being eligible to full membership. In the capacity of engineer, I have acted for municipalities, for private water companies and for contractors; the construction work of which I have had personal supervision amounts in cost to more than five million dollars. Besides the work actually constructed, I have made plans and specifications for complete plants and additions to plants, and estimates of value of old plants in a number of citiess. I have planned and constructed complete water work plants in Chattanooga, Tennessee, Lookout Mountain, Tennessee, Meridian, Mississippi, Forsyth, Georgia, Augusta, Georgia, Greenwood, South Carolina, Algiers, Louisiana, and North Augusta, South Carolina. Have planned and constructed additions to water works plants at New Orleans, Louisiana, Summerville, Georgia, Rome, Georgia, and Little Rock, Arkansas. Have made complete plans and specifications for water works plants at Bay St. Louis, Mississippi, Greenville, Mississippi, Cleveland, Tennessee, Montgomery, Alabama, Canton, Mississippi, Sandersville, Georgia, Warrenville, South Carolina, and Gadsden, Alabama. Have made estimates of values of existing plants at Lexington, Kentucky, Birmingham, Alabama, Montgomery, Alabama, Macon, Georgia, Washington, Georgia, Clarksville, Tennessee, Knoxville, Tennessee, Norfolk, Virginia, Suffolk, Virginia, Memphis, Tennessee, Portsmouth, Virginia, and Berkley, Virginia. Have made estimates of probable cost of construction of proposed plant at Charleston, South Carolina. Have constructed for contractors' plants at Morristown, Tennessee, Austin, Texas, Inter-State Fair grounds at Atlanta, Georgia, and a pipe line from Waukesha,

3188 Wisconsin to Chicago, Illinois, a distance of one hundred and five miles. I have had a number of years of actual experience in the operation of plants at Chattanooga, Tennessee, Augusta, Georgia, Meridian, Mississippi, and Little Rock, Arkansas. Have acted as expert in court cases at Chattanooga, Tennessee, New Orleans, Louisiana, Montgomery, Alabama, and Gadsden, Alabama. Have made reports on contamination of water supply at Danville, Virginia, and for the New York Central Railroad at New York City.

Have had actual experience in filtering the waters of the Tennessee, Coosa, Arkansas, Savannah, Cumberland, and Ocomulgee rivers. Have been employed on the Texas Pacific, Louisville, New Orleans, and Texas and Pensacola, and Atlantic Railroads. Have planned and constructed sewers at Atlanta, Augusta, Georgia and North Augusta, South Carolina. Masonry dams across Red Creek, Richmond County, Georgia, and across the Savannah River above Augusta. Masonry arches for highway bridges in Augusta; street paving in Augusta. Have made reports on water powers in the Savannah River, Ocomulgee River, Tennessee River, Broad River, and Stephens Creek.

Q. When you were in the University at this place, had the construction of the Knoxville Works begun?

A. The actual construction had not begun, but some surveys were then being made, and our class was taken out two or three times for a little experience in field-work.

Q. Where were you living and what was your occupation at the time when the Knoxville Plant was being constructed?

A. I was in Chattanooga as superintendent at that place.

Q. How long did you remain as superintendent of the Chattanooga Water Works?

A. From 1883 to 1893—ten years. During that time I was superintendent and also constructing engineer for the Chattanooga Meridian, Mississippi, and Little Rock, Arkansas plants.

Q. When you left Chattanooga did you go to Augusta?

A. I moved to Atlanta from Chattanooga and opened an
3189 office for general practice.

Q. When did you go to Augusta?

A. In 1898.

Q. Did I understand that you constructed the water works at Augusta?

A. Yes sir, I planned and constructed the water works complete.

Q. For a private company, or for the city?

A. For the city.

Q. In what year was that work done?

A. In 1898 and 1899.

Q. What did the plant cost?

A. About $450,000.00.

Q. How long did you continue in the service of the city of Augusta?

A. Six years, and am in the service of the city now.

Q. During the entire period from 1883 to the present time, have you been in the active practice of your profession?

A. Yes.

Q. What connection did I understand that you had with the construction of a water plant at Morristown, Tennessee?

A. As contractor—acting for the contractors.

Q. Did you design those works?

A. No sir, they were disigned by J. L. Ludlow.

Q. Were you the engineer in charge for the contractors?

A. Yes sir.

Q. Who made the bids for the contractors?
A. I did.
Q. What year was that?
A. I think in the fall of 1895.
Q. How long did that work occupy?
A. About six months.

Q. How does the general quality and composition of the
3190 soil at Chattanooga, Morristown, and Knoxville, compare?

A. Morristown and Knoxville and some portions of Chattanooga are almost identical in formation.

Q. How about the topography?
A. It is very much the same in the three places.
Q. Have you had actual and direct supervision of construction work at Morristown and Chattanooga?
A. Yes, at Chattanooga our work was done by day's labor—not by contract. I had charge of the work, paid all the bills, and kept an account of the cost of each item. In Morristown, I had also charge of the work and o-k'd and paid all the bills, and know exactly what each item cost at both places.
Q. During the construction of the Knoxville plant, did you have any occasion to be in Knoxville?
A. In 1883, I think it was, at the time of the construction of the plant, I came up to examine the injury that by the newspaper reports was said to have occurred at the reservoir which had just been completed. I looked over that portion of the work carefully and also went over a good deal of the general plant.
Q. Was your visit here for personal or professional reasons?
A. Professional; I received no compensation for the visit, but for my own instruction as an engineer, I wanted to see what the nature of the trouble was.
Q. Can you locate the time in the year 1883 when you were here for that purpose?
A. I believe not; I did not impress it on my mind at all.
Q. I don't know Mr. Wingfield myself what the date of that break in the reservoir was, but I would be glad if you could determine whether it was in 1883 or 1884.
A. I think it was in 1883; possibly the latter part of the year, but I am not positive. There was nothing that would make me take especial note of the time. I simply came to see the construction.

3191 Q. What condition did you find when you got to the Knoxville reservoir?

A. There was a large hole in one corner of it; it was at that time about 20 or 25 feet deep, the bottom was filled up with earth and there were laborers down in there ramming in puddle. That puddle was brought all the way from the bottom up to the finished bottom of the reservoir, as I remember it, about 20 or 25 feet.
Q. Can you state the cause of that break in the reservoir?
A. My judgment is, and that is based on a similar accident to the reservoir on Missionary Ridge at Chattanooga, that there was an opening in the limestone formation underneath which came

nearer the bottom of the reservoir than safety allowed and the pressure, after water was turned in, forced its way through and found an outlet in one of the numerous channels which always exist in limestone formation.

Q. What is the peculiarity of the limestone formation you have referred?

A. That it is very much broken, full of holes and crevices.

Q. Would the failure to detect the existence of a fault in the soil of the kind you mention, imply inefficient or careless engineering?

A. Nothing at all. There was nothing to indicate that the cavity existed underneath the reservoir, and could only have been ascertained by sinking test holes all over the location of the reservoir. That is never done beyond a few holes, say 50 to 75 feet apart to determine the character of the soil underneath.

Q. Do you remember who was the engineer in charge of the work when you were here on that visit?

A. Mr. Fred Fuller.

Q. Did Colonel Lockett have any connection with it at that time?

A. I am not positive as to that.

Q. What was a proper method to cure that trouble?

3192 A. There was only one way, and that was to dig down to a point where the hole would be uncovered, and to start from there and build up in such a way that the weight of the water would be sustained.

Q. Do you approve as correct the method which was adopted in filling that place?

A. Yes sir, experience has shown that the trouble was cured and the method adopted was probably as cheap or cheaper than in fixing it in any other way.

Q. Have you made an examination and distribution or analysis of the property of the Knoxville Water Company as of the 31st of March, 1901?

A. I have made an examination of all visible property, have taken measurements to determine sizes and quantities, and have made up an estimate of what I believe to be the cost of duplicating the plant on March 31, 1901.

Q. When did you begin that work?

A. It was on the 15th of December.

Q. How long were you engaged on the work in Knoxville?

A. Five days.

Q. Were you further engaged on it after you left Knoxville?

A. Yes sir, for a week or more, in figuring up quantities.

Q. Is that a sufficient time to do such work thoroughly?

A. I think it is; I am certain that I have covered all the ground, and have been extremely careful in all calculation. It is true that my familiarity with work of this kind would enable me to get at the values in a great deal less time than a man who was not as familiar.

Q. You say that you have made certain measurements; were they made by yourself or with some one else?

A. They were made by Mr. J. L. Ludlow and myself jointly.

Q. Now I wish you would state at the risk of some tediousness what you did measure.

3193 A. I measured the earth excavation at the River station, the rock excavation at the River station, the concrete floors, all brick work and wood work, windows and doors, concrete in intake tower and screen well, pump foundations, boiler settings and in fact all work of that kind at the River station. I made measurements covering the same ground at the filter house and settling basin, including excavation, brick work, cement floors, concrete, carpenter work, doors &c. At the reservoir I measured the existing embankment, and as much as possible the concrete and brick linning I measured the fencing, for the chimney, I measured the size of foundations; for the stand-pipe I measured the size of foundation and the height; in the filter plant I measured the filters and the boilers and the pump to ascertain the size. The number of feet in the pipe system I took from the Water Company in their number of feet and sizes, also the number of valves as shown on that distribution plan. Service connections and meters also came from the Water Company. All other measurements not enumerated above, which were necessary to ascertain the exact dimensions and character of the visible physical property were taken by Mr. Ludlow and myself jointly.

Q. Were you present when all the measurements by either your self or Mr. Ludlow were made?

A. I took them all, calling them, he holding one end of the tape and I the other.

Q. Did you consult the plans of the buildings and other plans in the office of the Water Company?

A. We did, and checked our findings with the plans after we had made up our quantities.

Q. [Illegible.] and uses of which you were unfamiliar when you made this estimate?

A. None at all.

3194 Q. Is there anything in the system which has not itself of its equivalent been used by you in handling water works construction?

A. I don't recall a single piece of machinery or anything else that I haven't used in other places.

Q. Is there anything in the plant of the Knoxville Water Company that you had not estimated prices upon before you came to Knoxville last month?

A. You mean in other places?

Q. Yes sir.

A. No.

Q. Did you check the plans of the Water Company?

A. I did.

Q. Did you find them correct?

A. Yes sir.

Q. Please give an itemized statement of your Replacement Valuation as of March 31, 1901 to the stenographer.

Mr. PICKLE: We except to this evidence as not being in rebuttal,

but in chief, no evidence as to replacement value on the 31st of March 1901, having been offered by the plaintiff before closing his evidence in chief.

Second. That if admitted at all, it cannot be admitted for any purpose of evidence in chief, or used as evidence in chief, but simply as a matter of rebuttal to the evidence offered by the defense.

Mr. CALDWELL: Our replacement estimates referred to the date of September 30, 1902, under the ruling of the Court to the effect that this inquiry might be brought down to that date, and if the ruling of the Court at the time when those replacement statements were put in had been the same as the Master and Counsel understand it now, we would have applied our replacement statements to
3195 date March 31st 1901.

COMMISSIONER: I will admit the testimony and will consider the effect of the exception in my findings in the case.

A. Said Replacement Valuation Statement is as follows:—

Knoxville Water Works.

Replacement Value March 31st, 1901.

Estimated by Nisbet Wingfield and J. L. Ludlow.

River Station.

Earth excavation around station,	1954	cubic yds.	at	20c..		$390.80	–
" " in old engine pit	750	"	"	"	30c..	225.00	–
" " in new engine pit	833	"	"	"	30c..	249.90	–
" " in Coal chute.....	50	"	"	"	25c..	12.50	–
" " in screen well....	13	"	"	"	30c..	3.90	–
						$882.10	
For Engineering and contingencies add 16%						141.14	0
						$1023.24	
Rock excavation around Station..	1296	cu. yds.	at	80c..		$1036.80	–
" " old engine pit....	680	"	"	"	1.50..	1020.00	–
" " in boiler house..	114	"	"	"	1.00..	114.00	–
" " in new engine pit	370	"	"	"	1.50..	555.00	–
" " in coal chute.....	62	"	"	"	1.00..	62.00	–
" " in tunnel between wells...	55	cu. yds.		$3.00..		165.00	–
" " in screen well...	31	cu. yds.	at	3.00..		93.00	–
						$3045.80	
For engineering and contingencies add 16%						487.33	0
						$3533.13	

Concrete in pumping station.....	722 cu. yds. at	6.50..	$4693.00
" floors in " "	402 sq. yds.	1.44..	578.88
Brick floors in coal house.....	80 sq. yds.	1.20..	96.00
			$5367.88
For engineering and contingencies add 16%.....			858.86
			$6226.74

3196 Brick work laid in cement—

in Rosendale, old engine pit.....	76520 at	$15.00...	$1147.80
" Portland, new engine pit.....	57440 "	17.00...	976.48
" Rosendale, old station.....	16320 "	14.00...	228.48
" Portland, new station.....	28800 "	17.00...	489.60
" " new station—workshop,	16200 "	17.00...	275.40
" " new station office.....	11400 "	17.00...	193.80
" " retaining wall around— new pump pit.....	79200 "	17.00...	1346.40
" Rosendale, retaining wall E & W of station.....	57900 "	14.00...	810.60
" Portland, screen well.....	20800 "	17.00...	353.60
" Rosendale, in boiler room.....	37065 "	14.00...	518.91
" " " coal chute.....	24000 "	15.00...	360.00
" " " " scales.....	18000 "	14.00...	252.00
" Portland " tunnel.....	10400 "	20.00...	208.00
" Rosendale in tool house—rearwall,	14400 "	14.00...	201.60
			$7362.67
For engineering and contingencies add 16%.....			1178.03
			$8540.70

Brick work laid in lime mortar—

in old engine room.....	38080		
" new engine room circle.....	23120		
" " " " office.....	19440		
" " " " workshop.....	19440		
" boiler room.....	47580		
" tool house, front & ends.....	10180		
" lab-ratory.....	16650		
	164490 at	12.00...	$1973.88
Deduct ½ area of openings.....	10450 "	12.00...	125.40
			1848.48
For engineering and contingencies add 16%.....			295.75
			$2144.23

3197	Vitrified brick, 52500 at $7.00, additional cost...		$367.50
	Enamel brick, 11500 " 111.00 " " ...		1276.50
			$1644.00
	For engineering and contingencies add 16%		253.04
			$1907.04
	For floors and roofs, all wood		1724.00
	Hardware and nails		340.00
	Painting and oiling		212.50
	Slate roofing		654.00
	Guttering and flashing		165.00
	Doors, windows and frames		426.50
	Window and door sills		207.00
	Stairs and railing		695.00
	Railing around pit		195.80
	Lavatory, $200.00 less $85.00		115.00
	Plumbing, heating and lighting		300.00
	Felt roofing of tool house		17.50
	Macadam		35.00
	Sodding		65.00
	Fencing Craig Street lots		175.00
	Drainage Front " stairs, &c		134.00
			$5461.30
	For engineering and contingencies add 16%		873.81
			$6335.11

Summary of River Station.

Earth excavation	1023.24
Rock excavation	3533.13
Concrete and brick, and concrete floors	6226.74
Brick work in cement mortar	8540.70
Brick work in lime mortar	2144.23
Vitrified and enamel brick, extra	1907.04
Floors, roofs and sundries	6335.11
	$29710.19

3198	Intake tower and suction connection...	10,723.25	
	Screen well equipment	650.00	
	Pumps and connections	29,515.10	
	Boilers and connections	9,752.50	
		$50,640.85	
	For engineering and contingencies—16% ...	8,102.54	
			$58,743.39
			$88,453.58

Filter house and high-service pumping station:

Excavation for Filter House	1129 Cu. Yds. at	20c..	$25.80
" " Settling basin ...	277 " " "	20...	55.40
Grading around station	2000 " " "	18...	360.00
Concrete in s-ttling basin walls,	105 " " "	8.50...	892.50
Plastering " " "	231 sq. " "	1.00...	231.00
Cement floors	849 " " "	1.44...	1222.56
Brick laid in cement—Portland	138000 "	17.00...	2346.00
" " lime	180000 "	12.00...	2160.00
Extra for vitrified brick	187000 "	7.00...	1309.00
Lumber and wood floors			1169.70
Carpenter work			890.00
Hardware, nails and iron			300.00
Painting and oiling			383.00
Flashing and guttering			250.00
Slate roofing			855.00
Doors and windows			295.50
Door and window sills			147.00
Stairs and steps			110.00
Heating and lighting			165.00
Fire protection			200.00
Drainage and settling basin connections			1498.80
Sodding			145.00
Macadam walks and drives			92.00
Fencing			280.00
			$15583.26
For engineering and contingencies add 16%			2493.32
			$–8076.58

3199 Lonsdale stand pipe:

Estimated 120,000 lbs. at 5c., erected	$6000.00
Foundation, 180 Cubic yds. at $5.00	900.00
Excavation, 90 " " " .20	18.00
	6918.00
For engineering and contingencies add 16%	1106.88
	$8024.88

Storage reservoir:

Excavation and embankment, 13000 at 40c	$5200.00
Concrete and brick lining, 47196 sq. ft. at 30c	14158.80
Puddling sides and bottom, 47196 " " " 04c	1887.04
Preparing hillside for embankment	1000.00
Wire fencing	105.00
Fencing around lot	250.00

Contingent allowance for bad bottom	2000.00
Grading and sodding bank	200.00
	$24,801.64
For engineering and contingencies add 16%	3,968.26
	$28,769.90

Chimney stack:

Brick work, 52600 at 20.00	$1,052.00
Vitrified brick, 15000 " 7.00 extra	105.00
Trimming brick, 3200 " 20.00	64.00
Concrete Foundation, 17 yds. at $5.00	85.00
Excavating for foundation, 17 yards at 20c	3.40
Lead Cap plate	34.00
Lightning rod equipment	50.00
Cleaning door and frame	5.00
	$1,398.40
For engineering and contingencies add 16%	223.74
	$1,622.14

3200 Stand pipe on Reservoir hill:

210,000 lbs at 5c	$10,500.00
Foundation, 139 cubic yds. at $5.00	695.00
Excavation, 45 " " " .20	9.00
Connection to pipe lines, " " "	60.00
	$11264.00
For engineering and contingencies add 16%	1802.24
	$13066.24

Filter plant:

Furnishing and installing 18, 10½ ft. Warren Filters—capacity 5,000,000 gallons	$30000.00
For engineering and contingencies add 16%	4800.00
	$34800.00

Pumping engine at filter station:

Compound duplex 2,000,000 gallon pump	$3000.00
Foundations and connections	624.15
	$3624.15
For engineering and contingencies add 16%	579.86
	$4204.01

Boilers at high service station:

Manning upright boiler and connections	$1140.00
Return tub-lar boiler and connections	1025.00
	$2165.00
For engineering and contingencies add 16%	346.40
	$2511.40

Group B.

Summary of Filter Station and Equipment.

Filter house	$18076.58
Lonsdale stand pipe	8024.88
Storage Reservoir	28769.90
Chimney Stack	1622.14
Reservoir Hill Stand Pipe	13066.24
Filter Plant	34800.00
Pumping Engine	4204.01
Boilers	2511.40
	$111,075.15

3201 Pipe distribution system:

6126 tons cast iron pipe—3″ to 20″ diam. at 24.00	$147024.00
Special 4% amount of pipe	5880.96
Laying 20″ pipe 2,723 feet at .60	1633.80
" 18″ " 715 " at .50	357.50
" 16″ " 9,031 " " .43	3883.33
" 14″ " 7,608 " " .35	2662.80
" 12″ " 34,383 " " .27	9283.41
" 10″ " 23,680 " " .22	5209.60
" 8″ " 37,214 " " .18	6698.52
" 6″ " 104,821 " " .16	16771.36
" 4″ " 45,109 " " .12	5533.08
" 3″ " 20,864 " " .10	2086.40
Restoring street surfaces—205,377 ft. macadam at .10	20537.70
" " " 16,404 " brick " .50	8202.00
Rock excavation, 2871.5 cu. yds. at $2.00	5743.00
	$241507.46
For engineering and contingencies add 16%	38641.19
	$280148.65

Wrought iron pipe:

3½ inch 251 feet at .43 laid	$107.93
3 " 490 " " .37 "	181.30
2½ " 416 " " .31 "	128.96
2 " 33923 " " .26 "	8619.38
1½ " 5668 " " .22 "	1246.96
1¼ " 5557 " " .19 "	1055.83

1 inch 18152 feet at .16 laid		$2904.32
¾ " 9036 " " .12 "		1084.32
½ " 1517 " " .10 "		151.70
Restoring street surfaces 41293′ at .10c. sts-macadam		4129.30
" " " 894′ " .50 "		447.00
Rock excavation 750 cu. yds. at $2.00		1500.00
Pipe bridges in Clinch Ave. and elsewhere		1000.00
		$22757.00
For engineering and contingencies add 16%		3641.12
		26398.12

3202 Hydrants and Valves.

266 hydrants set and connected at $30.00			$7980.00
20″ gates and boxes	9 at	125.00...	1125.00
18″ " " "	1 "	100.00...	100.00
16″ " " "	16 "	75.00...	1200.00
14″ " " "	14 "	60.00...	840.00
12″ " " "	31 "	41.00...	1271.00
10″ " " "	28 "	33.00...	924.00
8″ " " "	63 "	23.00...	1449.00
6″ " " "	125 "	15.00...	2775.00
4″ " " "	85 "	11.00...	935.00
3″ " " "	83 "	9.00...	747.00
2½″ Stop Cock and box	1 "	8.00...	8.00
2″ " " " "	60 "	6.50...	390.00
1½″ " " " "	10 "	5.50...	55.00
1¼″ " " " "	15 "	4.75...	71.25
1″ " " " "	36 "	4.25...	153.00
¾″ " " " "	24 "	4.00...	96.00
½″ " " " "	3 "	3.55...	10.65
16″ Check valve	1 "	185.00...	185.00
10″ " "	1 "	60.00...	60.00
1½ Automatic air valve	3 at	15.00...	45.00
Brick chambers with iron cover	5 "	20.00...	100.00
			$20519.90
Totals for Hydrants and valves, brought forward			20519.90
For engineering and contingencies add 16%			3283.18
			$23803.08

3203 Service Connections and Meters.

3910 service pipes in macadam and dirt streets at $8.00			$31280.00
413 " " " brick streets	"	18.00..	7434.00
			$38704.00
275 meters			5018.75

275 meter boxes		" 8.00..	2200.00
Restoring cement sidewalks	85	" 3.00..	255.00
			$46187.75
For engineering and contingencies add 16%			7390.04
			$53,577.79

Group C. Summary of Pipe Distribution System.

Cast Iron pipe lines	$280148.65
Wrought iron pipe lines	26398.12
Hydrants and valves	23803.08
Service connections and meters	53577.79
	$383927.64

Final Summary.

River Station, Group A		$88453.58
Filter Station, Group B		111075.15
Pipe Distribution System, Group C		383927.64
Real Estate	$22422.00	
Tools, teams and stock	12221.87	
		34643.87
		$618100.24

3204 Q. In your Replacement Statement, the first general item is "River Station" the first particular item is "Earth excavation around station, 1954 cu. yds., at 20¢." What excavation does that 1954 yds., include?

A. That includes the excavation on each side of the station and behind.

Q. Now please state the nature of this particular excavation and why you fixed the price of it at 20¢ per cu. yd.

A. The excavation is on a hill-side, and is mixed up with rock to some extent. It has to be moved to either side of the station, and the price of 20¢ I fix as a minimum price at which I have had similar work of this kind done.

Q. Where, if any place in East Tennessee, have you had work of this kind done?

A. In Norristown and Chattanooga.

Q. The next two items, to wit: "Earth excavation in old engine pit and new engine pit," you charge at 30¢, and you also charge earth excavation in screen well at 30¢ a yard. Why were those prices adopted?

A. I based those on the cost of excavating the pit at Chattanooga and then deducting from the Chattanooga 10¢ per yard on account of not striking water. The actual cost of the excavation of the Chattanooga pit was 41¢, but we struck some water; therefore I made this price 30¢.

Q. Why did you allow 25¢ a yard for excavating earth for the coal chute?

A. I allowed 5¢ per yard in excess of the other excavation around the station on account of the slope being steep, and a man not being able to do as much work in that position as he would do on a level.

Q. I see that you allow next for "Engineering and contingencies 16%." State first how much you allow for engineering.

A. 6% for engineering and the 10% is the percentage al-
3205 ways added for contingencies.

Q. What do you mean by contingencies?

A. Any accident that might occur on the work which was unforeseen—conditions that might arise after the work is in progress which would increase its cost. As a matter of fact, no piece of work within my knowledge has ever been done without an element called "Extras" added to the original cost. Contingencies, to a large extent cover that item.

Q. Upon what experience do you adopt an allowance of 6% for engineering?

A. From my own experience in the cost of doing such work, if the work is properly done, and by that I mean commencing at the time the preliminary report is made, extending it through all the construction, including inspections of all work and material the giving of all grades, lines, furnshing and finishing plants, which I have found to cost in cash about 4% on a large contract and considerably above that on smaller ones. The difference between that and the 6% would be the engineer's fee for his work individually.

Q. Now why did you adopt 6% in this case, Mr. Wingfield?

A. Why did I adopt it?

Q. Yes, sir.

A. On account of the topography of the country. The ground is very rough, it would take a good deal of work, and if the work is to be duplicated, by that I mean, if you start from the inception of a new plant, which I understand this is an estimate of, why then the cost of engineering would be approximately what I have given, provided always that competent men are put in as inspectors and resident engineers.

Q. Have you done engineering work for contractors as well as for water companies in building water works.

A. Yes.

Q. How does your price of 6% compare with your observation and experience on both sides?

3206 A. It is from my experience on both sides that I have formed this estimate. I have probably done more engineering work in this line in the South than any other engineer in the country. The conditions are not the same in different localities North or South.

Q. I wish you would state the number, you have already given the names of water plants that you have constructed as engineer.

A. I have planned and constructed fourteen complete water works.

Q. How many have you planned which you have not personally constructed?

A. Twelve; and I have made estimates of values of existing plants of twelve.

Q. Where is the nearest system of water works to the city of Knoxville in East Tennessee?

A. I am not sure but I think at Morristown.

Q. How far is that from Knoxville?

A. Forty-two miles.

Q. In the matter of rock excavation your first item is "around pump station 1296 cu. yds. at 80¢ a yard." State the nature of that rock work and why you adopted that price.

A. That rock excavation at 80¢ was for taking down the bluff behind and inside of the coal house to the level of the present floor, and the price is based on my experience of similar work in other places.

Q. Why do you allow the price of $1.50 a cu. yd. for rock excavation in the old engine pit and in the new engine pit?

A. On account of the small diameter of the pit, and having to be quarried in the same kind of shape, and also to the fact that nearly, if not all of the material excavated would have to be moved out of the pit. In quarrying a pit, or any small hole out of stone there is always a great deal more of excavation than actually shows
3207 after the job is completed, it being necessary to make the diameter much larger in order that the jagged ends may not project into the work. I have estimated the exact contents of the well only and made the difference in price of $1.50.

Q. Messrs. Nixon and Brown have estimated the rock excavation in the old engine pit at 627 cu. yds. and you at 680 cu. yds. Did you make the measurement and estimate for this item yourself?

A. Yes, sir.

Q. Have you your calculations with you?

A. Yes, sir.

Q. Place the entire calculation into the record and show the court the method you adopted.

A. I took the measure of the engine pit, calculated rock to be at the surface on the north end and 7 ft. below the surface on the south end. This information as to the depth of rock on the south end was obtained from an employee who was on the construction. Averaging that and taking the depth of the pit, makes the contents 680 yds. of rock.

Q. In the matter of the new engine pit, Messrs. Nixon and Brown have 250 cu. yds. of rock and you and Mr. Ludlow 370 cu. yds. for rock.

A. I think that you will find that discrepancy is due to the fact that Messrs. Nixon and Brown have assumed that there was more earth excavation than was assumed by Mr. Ludlow and myself. It is impossible, from the nature of things, to fix exactly the rock line. All that we had to go by was the statement of those who were engaged on the work at the time of construction. My estimate was made up in the same manner as that of the old engine pit, starting 7 ft. below the surface at the north side and reaching down about 17 ft. on the

lower or south side—averaging that makes 370 yds. of rock—the balance of the excavation of that engine pit being earth.

3208 Q. In the matter of the earth excavation in the old engine pit how did you reach your conclusion that there were 750 cu. yds. of earth in that pit?

A. I took the size of the room, 50x54 ft., the walls of the pit being so close to the walls of the building as to render it necessary to take out the full size of the room—that 50x54 ft. multiply that by the average depth of 7½ ft. makes 750 yds.

Q. Did you pursue the same method in ar-iving at the quantity of earth excavation in the new engine pit?

A. Yes, in figuring the earth excavation in both pits I allowed for several feet outside of the actual walls, that being necessary in order to prevent the walls or earth from caving while the work is under construction.

Q. In the matter of concrete in the pump station, you find 722 cu. yds. at $6.50 a yard. I wish to ask you first if your replacement estimate contemplates the use of the same kinds of materials that are already in the plant.

A. Yes, I have followed the present plant as closely as possible in order to arrive at the cost of an exact duplication.

Q. Now where are there 722 cu. yds. of concrete?

A. The concrete is on the outside of the new engine pit between that and the retaining wall and the bottom of both engine pits, and in the floors to the Deane pumping room.

Q. Why do you allow the price of $6.50 a cu. yard for this concrete?

A. Because that is a reasonable price based on my experience for concrete made of Portland cement in the proper proportion.

Q. In what proportions do you mix your concrete?

A. It depends upon the character of the work. I use three proportions; one, two, and four; one, two and one-half and five and one, three and six. In figuring the cost of concrete in this plant, I have used each one of those three formulaes in different places.

3209 Q. Did you use these several formulaes of your own volition or did you get them from the Knoxville Water Company?

A. I used them of my own volition.

Q. You had used them before in water works construction?

A. Yes sir, I have put in probably sixty or seventy thousand cubic yards of concrete, and have used all three of these formulaes according to the character of the work.

Q. Over what period does your experience in the use of concrete extend?

A. Over twenty years.

Q. Has there been any year since 1883 or 1884 when you were not doing work of this kind?

A. Not one.

Q. What would indicate the proportions in which you would mix concrete?

A. It would depend upon the exposure or liability to damage

from outside sources; also the character of the foundation and the pressure it was designed to carry.

Q. How much cement, how much sand and how much broken stone in a yard of concrete under the formula of 1, 2½ and 5.

A. There is 1 8/10 barrels of cement, ½ yd. of sand and a yard of stone.

Q. What would your cement cost?

A. I figured it at $2.25 a barrel; that is about as low as it has ever sold, I believe.

Q. Portland cement?

A. Portland cement.

Q. What does the sand cost?

A. I figured it at 50 cts. a yard or 25 cts. ½ yd.

Q. What does your broken stone cost?

A. One dollar.

Q. How do you make up the rest of your price of $6.50?

A. Cement $4.50, sand 25 cts., stone $1.00 and labor $1.20.

Q. You say you have allowed $2.25 per barrel for the
3210 Portland cement. What is the highest price you have paid for Portland in the last ten years if you can remember?

A. $4.30.

Q. When was that?

A. That was about 7 years ago.

Q. How was it about the year 1895?

Mr. PICKLE: You are going into an examination that is wholly irrelevant, Mr. Caldweel, inasmuch as those years are concerned.

Mr. CALDWELL: That was the year our station was built.

A. It was in the neighborhood of three dollars, I think.

COMMISSIONER: Now what was it in the year 1901?

A. I paid $2.45 for it at Augusta.

Q. What time in the year?

A. Well, it was about February or March. We let the contract there by the year, and usually let the contracts in February, and sometimes as late as March.

Q. Has there been any one of the several water plants that you have built in which there was not brick construction, and the brick laid in cement?

A. I think not.

Q. Why do you allow prices of $15.00 for brick work in Rosendale cement in the old engine pit, brick work in Portland cement in the new engine pit at $17.00 and in the old station in Rosendale cement at $14.00 a thousand?

A. The difference of $1.00 per thousand in the cost of Rosendale brick masonry between the old station and the pumping pit is the extra cost of laying brick in a place of that kind. The scaffolding has to be higher, and the labor necessary to handle the material is greater.

Q. Now Mr. Wingfield, there has been much difference of opinion in this case between expert witnesses as to prices of brick laid in cement and otherwise. Upon what do you base the prices of brick

laid in cement, of brick laid in lime-mortar and of vitrified
3211 brick which appear in your replacement estimate?

A. The cost of laying brick in the different manners set out, I have gotten from actual experience with that class of work, and is based on prices from contractors covering almost every condition. The extra price of vitrified brick I got by taking the cost of those brick as furnished me by the water company and verifying by a quotation from the vitrified brick companies, the difference in price being $7.00. All other items of the cost were figured the same.

Q. Are you prepared to say that these brick prices of yours are the fair result of your entire experience and observation as an engineer constructing water works, confining your answer to the date of March 31, 1901?

A. From the experience I have had in other places, the prices set out here would be a fair estimate of value, and I believe would be approximately what would be charged by contractors if the work was advertised and let on that date.

Q. How do you get your prices for wood floors and roofing?

A. By measuring the floors, getting the thousand board measure of flooring, and as far as practical, measuring the roofs. Where the items are not large I have in every instance estimated approximately what it would be, the total amount of such items estimated being so small as not to cut any figure in the total valuation.

Q. How did you get your prices for painting and oiling?

A. Based on experience I have had of similar work at other places.

Q. How about guttering, flashing, and felt-roofing on the tool house?

A. In the same way.

Q. Have you had experience with all those items last mentioned?

A. Each of those items enter into the construction of every plant upon which I have been employed.

Q. I see that your allow the price of $10723.25 for the
3212 intake tower and suction connection. What is the intake tower composed of?

A. Concrete principally.

Q. What did you allow per cu. yd. for that concrete?

A. $8.50.

Q. Why did you adopt that price?

A. Because from its peculiar situation; the character of the concrete would have to be very rich. I adopted one, two and a half and five in Portland cement as the mixture. On account of the formation of it, the labor in placing it would be very much greater than doing work, even of similar mixture, in a foundation or in a place where it could be readily gotten to. The river had to be cut off while the work of construction was going on, and this made necessary the construction of a coffer-dam.

Q. What is the shape of the intake tower?

A. It is more in the shape of an ellipse than anything else; it is long with rounded ends.

Q. If you adopt a proportion of 1, 2½, and 5 for the concrete, to what extent will the various elements of concrete go in?

A. You mean in bulk?

Q. I mean in the yard.

A. The full amount of stone would go in, one-half the amount of sand and one-fifth of the bulk of cement.

COMMISSIONER: You have told us what it ought to be; do you know what it is?

A. I think it is about that. I don't think it would stand up if it wasn't.

Mr. PICKLE: But you don't know anything about it.

A. No sir, nobody could tell; except you could tell whether it was good or bad.

Q. If you were building that intake tower, what formula would you adopt?

A. Just that; I adopted that without any reference to any mixture that the water company had used in it.

Q. Have you built similar constructions under similar conditions?

A. Yes sir.

3213 Q. What did you find to be the amount of concrete in that intake tower?

A. I figured that from the plans, after taking the measurement on top on account of its being impossible to get down to the bottom—it being in the river—and it figured out just what is shown, within about 8 or ten yards on the plan.

Q. What do you mean by suction connection?

A. That is the connections between the pumps and intake tower.

Q. Mr. Wingfield, what have you to say as to the feasibility of blasting in a coffer-dam?

A. It can be done of course, but such precautions have to be taken to insure against damage to the coffer-dam, and it will increase the price more than double and sometimes three times what it would cost out in the open.

Q. Have you had experience in that respect?

A. Yes, I have had that too.

Q. Lots of it you say?

A. Yes, a great deal of it.

Q. And you think it will increase the price 100% than if it was out in the open?

A. I know it will. If you put in a large enough blast to get the rock out in the usual quantities, you are going to injure your coffer-dam, and that is going to have to be repaired, so in the quantity of rock, or in the matter of repairs to the coffer-dam, you have added the increased cost.

Q. Now do you state that from experience or from theory?

A. From experience.

Q. How do you get your $29515.10 on pumps and connections?

A. By taking the price of the Worthington pump, what it would have been in my judgement on that date, based on what I know it would cost now, and what it did cost several years before arriv-

3214 ing at the cost of the Deane in the same way, and to this adding the pipe connections, makes up the total of $29515.10.

Q. Did you ever purchase a Worthington engine?
A. Several; I have purchased about fifteen.
Q. Were any of them of approximately the same capacity as the Worthington engine here?
A. One almost identically at Montgomery, Alabama.
Q. When did you buy that engine at Montgomery?
A. In 1889.
Q. What part of 1889?
A. The latter part I think.
Q. What would have been the difference in the price of the engine at that time and in 1901, in the spring?
A. I think the 1901 price would have been greater.
Q. Have you had any experience in purchasing and setting Deane pumps?
A. Yes sir, I have purchased four or five.
Q. And these prices as I understand are the result of your experience in these matters?
A. Yes.
Q. You have allowed $9752.50 for boilers and connections. Have you distributed that aggregate among the different items under that heading?
A. That is made up of four boilers and the automatic feeds the brick work and boiler settings, the automatic draught, boiler feed pump and the connections between the pump and boilers, blow-off pipes, steam valves, &c.
Q. Have you ever purchased and erected any boilers for similar use in water works plants?
A. Yes.
Q. About how many?
A. About thirty.

Q. Mr. Wingfield, do the size and capacity of a pumping
3215 engine fix the price for such machinery?

A. Not necessarily; that is one of the factors; another factor is the character of the engine, that is whether it was built for the purpose of saving fuel. Engines of the same capacity of the Direct type, or Compound or Triple Expansion or high duty may vary as much as 200% in cost.
Q. What do you mean by the term "duty?"
A. The saving of coal. That is a simple explanation of it. Duty means the amount of work that one engine will do with a certain amount of fuel as compared with another engine with the same amount of fuel. For instance, an ordinary simple pump will give you a duty of about fifteen millons; a high duty pump will give you a duty of one hundred and twenty five millons. In other words, the high duty will do more work with the same amount of coal and therefore the price is different.
COMMISSIONER: Are those guarantees with the engines?
A. Duties are guaranteed by the engine manufacturers when sales are made, but the above statement is based on the actual experience I have had in operating all of the four types of engines.
Q. Did you ever buy any pumps or other water works appoint-

ments from the Herron-Brady Pump Company of Chattanooga, Tennessee?

A. No, that is a new concern ther-, and has only been in operation about three months.

Q. Was the Herron-Brady Pump Company in position on the 31st of March, 1901, to give information as to the cost of pumping engines for water works?

A. I should think not because I do not believe they were in existence at that time.

Q. Did you make measurements to ascertain the amount of excavation at the filter house?

A. Yes.

Q. For the settling basin?

3216 A. Yes.

Q. For the grading around the station?

A. Yes.

Q. Did you measure the concrete?

A. Yes.

Q. The plastering?

A. Yes.

Q. The cement floors?

A. Yes.

Q. Brick laid in Portland?

A. Yes.

Q. Brick laid in lime?

A. Yes.

Q. And all other items under the head of filter house and high service pump station in your replacement estimate?

A. Yes.

Q. Why did you allow $8.50 a yard for concrete in the settling basin walls?

A. The proportions of the concrete, I figured the same as those in the intake house; that is 1, 2½ and 5. Taking into consideration the cost of the forms and that size of the wall, the cost of putting it in place, will very nearly, if not quite equal the cost of the intake tower. Therefore, I figured just as I figured there and which I explained a moment ago.

Q. How did you get your price for cement floors?

A. From actual experience covering many thousands of yards, a portion of which was done on the exact date of this hearing, that is March 31, 1901, the cost being 16¢ per sq. ft., or $1.44 a yard.

Q. In the spring of the year 1901, were you doing any water works construction?

A. Yes, making some extensions.

Q. I see in the items under the head of filter house and high service station, mentions of slate roofing, heating and lighting fire protection. Are you familiar from your experience of the cost of these items?

A. Yes, I have items of that kind in all water works plants.

Q. How did you get your number of pounds in the Lonsdale stand pipe?

A. By taking the height and the diameter and estimating what the thickness of the plates should be; that based on a personal
3217 observation, which seemed to carry it out, that would equal one hundred and twenty thousand pounds, including the plates, the anchor bolts and the ladder and all other iron work. Arriving at the weight I took the price of 5¢ per pound erected, that being the usual way in which structures of this kind are figured—that is by the pound erected. The foundation, I measured in diameter and assumed the depth to be five ft.—it certainly could not be any less than that, as about three and one half feet were exposed—and that makes 180 cu. yds. The excavation of 90 yds. is for that portion of the foundation which is underneath the surface.

Q. What thickness did you allow for the plates?

A. Running from 11/16 at the bottom to a quarter of an inch at the top.

Q. Did you personally inspect the tower?

A. I did.

Q. Did you ever put up a steel tower of that kind?

A. Yes, quite a number.

Q. How many?

A. Six.

Q. The storage reservoir referred to in your replacement estimate is the one in East Knoxville connected with the filter station, is it?

A. Yes.

Q. Did you make any measurements there?

A. I measured the embankment as near as I could get at it. I measured the top, the distance around, the width of the top and got the height by comparison. I did not take the spirit level. It figured out 13000 yds. in the embankment as it stands.

Q. Now what do you mean by "figured out 13000 yds."?

A. I mean from the measurements I took, there appears to be 13000 cu. yds. of earth in embankment around the reservoir, and that that amount of earth has been moved in constructing the reservoir.

Q. Did you ever build an earth reservoir for holding water?

A. Yes sir.

Q. How many?

A. I have built seven.

3218 Q. What was the date of the earliest you built?

A. I think the Chattanooga reservoir was the first one built in 1889. They were just constructing one at Chattanooga when I went there but is was practically completed when I was employed.

Q. Why did you adopt the price of 40¢ a yard for excavation and embankment?

A. In order to make the reservoir embankment impervious to water and rigid enough to withstand the pressure without breaking it is necessary to roll and puddle the earth, or to compact it in some other efficient manner, and from my experience on that line I have placed the price at 40¢ which I think will be about an average cost of such work. The price of 40¢ includes the excavation and

placing the material in the fill. While the fill is being made the earth is rolled and watered or compacted in some other way.

Q. State the methods by which you reach the conclusion that there are 13000 cu. yds. in that embankment.

A. I measured the excavation as appears in the reservoir by taking the top as it stands, getting the depth of it from the water company and calculating the entire inside capacity which amount to something like 25000 or 26000 yds. I took the earth line outside of the reservoir bank, averaged that as the depth on the outside toe and then took one half of the distance down the side of the cut and averaging those two reached the conclusion that there were 13000 yds. of earth which had been excavated and placed in the embankment.

Q. Why do you say that it was worth 40¢ a yard to take that earth out of the reservoir, place it in the embankment and complete the embankment?

A. The price was based on actual experience I have had in that class of construction.

Q. You estimate concrete and brick lining at 47196 sq. ft. How many cubic yards would that make? First let me ask you how thick that would be.

A. I figured it at 8 in.

3219 Q. Then how many cubic yards would there be in 47196 square feet?

A. 5244 square yards and 1165 cubic yards and 47196 square feet.

Q. What do you mean by "puddling" sides and bottom of the reservoir?

A. For a space of from 18 inches to 3 feet on the sides and bottom of a reservoir, the clay is worked up with water into a putty and spread over and tamped into place in order to make it water tight, the idea being that if any leakage occur through the lining, that this clay puddle would catch it and prevent the moisture going into the embankment. This work was being done while I was in Knoxville at the time mentioned above, so that I am positive that that part of the work has gone into this construction. My own experience is, that I have always required it in all reservoirs.

Q. Does that puddling extend over the entire surface, sides and bottom of the reservoir?

A. Yes.

Q. Is that the proper way to build it?

A. That is the best way, and cheapest way to make it water tight.

Q. What do you mean by preparing the hill-side for the embankment?

A. It is impossible to build an embankment on a natural surface and prevent the water from finding its way underneath; the surface of the ground where the embankment has to lie, has to be prepared by digging away all vegetable matter and making a surface on which new dirt will lie in close compact. The preparing of the land around this reservoir for the reception of this embankment was what I have designated here as "preparing hill-side for embankment $1000.00."

Q. Is it your professional judgment that such preparation as that was necessary?

A. It is always absolutely necessary to make it water-tight.

Q. Is it impossible to make it water-tight without such preparation?

A. Yes, unless you go to the expense of making an abso-
3220 lutely water-tight lining, and if that is true, no lining that I know of 8 inches thick would answer.

Q. How did you reach your estimate that that would cost $1000.00?

A. That price is more or less arbitrary, because I don't know to what extent the preparation was made, but it is based on what I figured would be necessary to do under a space of that size.

Q. I see that you have made, what you designate as a contingent allowance for bad bottom amounting to $2000.00. Please give your reason for that?

A. That allowance was supposed to be the cost of replacing the reservoir bottom after it had fallen through. My reason for allowing it is, that I don't believe any one, no matter how experienced in such work, would have suspected that the cavity existed so close to the bottom of the reservoir. From observations around the city, I am satisfied also that any one else would have selected the same site on which to build a reservoir, as that is the logical site for such construction. Therefore, as that is the site on which a reservoir should be built, and as it was no lack of forethought that caused the loss, I think it is proper to make allowances for it, inasmuch as it would have happened to any one else.

Q. Where is the chimney stack referred to in your replacement estimate?

A. It is up on reservoir hill.

Q. Did you ever build a chimney stack?

A. Yes, I have built one at each place in which I have constructed water works with the exception of Augusta.

Q. That makes thirteen of these stacks you have built then?

A. Yes sir.

Q. What is the shape of this stack?

A. You mean as to being square or round?

Q. Yes sir.

A. It is round.

Q. Is that the ordinary way of building them?

A. Yes, it is the best way, the most effective way, because
3221 the draft in a square stack is not equal to the draft in a round stack it requiring a larger amount of masonry to get equal efficiency in a square stack than in a round one.

Q. Why does it require more brick in a square stack?

A. The draft in a square stack takes the shape of circle equal in diameter to a circle that would just fit in the square, all the corners being without any surface whatever. The four sides of a square are longer than a circle of the same diameter. Therefore there would be less masonry in a circular stack of the same capacity than in a square stack.

Q. For what reason do you allow $20. a thousand for brick work?

A. That was based on actual experience in construction and is caused by the fact that a large amount has to be spent for scaffolding, on account of the conditions, labor is from two to three times as much per thousand brick as it is where the work is being done near the ground and in large pieces. In a stack of that size only one man can work to advantage, while it would be necessary for him to have a full force of helpers, just the same as if two or more masons were at work. My price of $20.00 includes all scaffolding, extra labor and cost of every kind.

Q. Do you think that on the date of March 31, 1901, according to your experience in building structures of this kind the brick in it could have been laid at $15.00?

A. No sir, I do not. I have never known one to be built at any time for that amount.

Q. I see that upon the top of that stack you have provided for a lead cap plate instead of a cement cap as called for by Messrs. Nixon and Brown. Why do you prefer the lead instead of the cement cap?

A. I took the lead cap because it is there now, so I am informed by the water company, and as this was a cost of duplication I took the lead cap. I also figured, however, the cost of an iron cap which is used I suppose more frequently than any other kind, and
3222 that exceeded the cost of the lead of the size they have here.

Q. Does a stack of that kind vibrate any?

Q. Yes sir, it swings like a pendulum.

Q. Can you tell to what extent it would swing?

A. No sir, I could not; it would probably swing 6 or 8 inches.

Q. Would that be at the top?

A. Yes.

Q. Would a vibration, a motion of that kind be injurious to a cement cap?

A. Well, it is probable that it would crack, though I connot say that motion would be bound to make it crack.

Q. In building such a stack yourself, what kind of a cap would you use?

A. Cast iron.

Q. What do you mean by "trimming brick" in that stack?

A. Brick to make the circle.

Q. Is that the outer layer of brick?

A. Yes, in turning the corners that would be the outer layer all the way up.

Q. You say you got some prices of vitrified from vitrified companies?

A. Yes.

Q. Have you ever used vitrified brick in work of this kind?

A. Yes.

Q. In how many of the stacks that you have built?

A. Only two.

Q. Do these prices correspond to your experience in building those two?

A. Yes, $7.00 extra for vitrified brick is a close price.

Q. What would be your price per thousand for vitrified brick laid in the stack?

A. $27.00.

Q. You have allowed concrete in the foundation of that stack at $5.00 a cu. yd., as I understand?

A. Yes.

Q. How did you reach that price of $5.00?

A. I made that 1, 2, and 4 of Rosendale cement; 1 of cement, 2 of sand and 4 of broken stone.

Q. How did you get the cost of the lightning rod equipment and of the cleaning door and frame?

A. The cleaning door and frame, I have bought a good many of them, and the lightning rod equipment is about what it
3223 would cost I had no price of it however, and the price being small I just put it in that way.

Q. How did you get the weight of the stand pipe on Reservoir Hill?

A. I took the thickness of the pipe and calculated it. I got the statement from the water company. There is no controversy in regard to that weight between Mr. Brown and Mr. Wheeler.

Q. Why did you adopt in this case the price 5 cents a pound for the steel?

A. That being about an average price based on work that I had done during the year 1901.

Q. Did you build a steel stand pipe in the year 1901?

A. Yes.

Q. What time in the year 1901?

A. It was in July, I think, or August.

Mr. PICKLE: We object to that date then.

Over-ruled.

Q. Did you make any inquiry of any manufacturer of steel for stand pipes as to prices as of the 31st of March, 1901?

A. I made inquiry of the Lombard Iron Works of Augusta, probably one of the largest concerns of that kind in the South, and the price that Mr. George R. Lombard, President and the owner of the works gave me was 5 cents per pound erected at any point with the same freight rate as Augusta, Georgia. I made this inquiry on January 2nd 1904.

Q. Did you make it as to what the cost would have been March 31, 1901?

A. Yes, I made it with a view of informing myself of what I would consider a fair price.

COMMISSIONER: And this is part of your other experiences and sources of information?

A. Yes.

Q. Did you ever build a filter plant?

A. Yes, I built one in Chattanooga, Augusta, Georgia, Lit-
3224 tle Rock, Arkansas, and Rome, Georgia.

Q. Did you ever install any Warren filters?

A. No.

Q. How did you get your acquaintance with the prices of those filters?

A. All the work of that kind that I have ever done was installed after competitive bids by the different filter manufacturers, those filter companies submitting plans and specifications under which they proposed to install the plant. I have had a price from the Warren people at every place I have ever worked on filter plants, and the price I have fixed for this plant here is based on prices that the Warren people have heretofore given me while in direct competition with all other filter companies.

Q. Then I understand that you have had four competitive bids from the Warren Filter Company for equipping filter plants which you yourself built?

A. Yes, and prices from them on several others on which I made reports of cost.

Q. About what time were those filter plants built by you and about what time were the statements of cost to which you last refer, gotten from them?

A. The first one was built in 1889 and the last one in 1901, the 1889 one being in Chattanooga and the 1901, being in Rome, and Augusta and Little Rock between those two.

Q. What time in 1901, did you construct the filter plant in Rome?

A. Bids were taken on that in the spring, about April.

Q. You say you had bids from the Warren Filter Company?

A. Yes sir.

Q. At what other time did you get any estimates of cost from the Warren Filter Company?

A. I got estimates from them while I was making a report on the valuation of the plant at Macon, Georgia.

3225 Q. When was that?

A. That was in 1894, I believe, then in 1895 when I was investigating the Clarksville, Tennessee plant; in 1896 at New Orleans, in 1898 at Augusta and in 1901 at Rome. I can tell you what the present price of the Trust is, if that is allowable.

Q. I don't believe that any of our inquiries have come down to this date, Mr. Wingfield.

A. Well this price that I have made here of $6000.00 on per million gallons capacity is based on prices I have obtained and is less than the price—I had from the Warren Filter Company.

Q. Why do you adopt a measurement referring to millions of gallons?

A. Because that is the way the prices are made, so much per million gallon capacity.

Q. Mr. Wingfield, describe the construction of one of these Warren filters generally to the Court.

A. It is a tub or cylinder partially filled with sand through which the water is to pass. There is at the bottom a system of collecting pipes in which the water enters and is let out from the system—all of the filters—regardless of make—have the same general principle, and that is that the water is put in at the top goes down through a sand bed and comes out at the bottom, and they have a device for

adding the coagulent—the coagulent being necessary to increase the particles held in the water of sufficient size to prevent them going through this sand bed into the water. The settling basin is necessary because the coagulent has to be applied to water sometimes before it goes to the filters. The general mode of operating then, is to carry the water first into the settling basin, and after passing the settling basin it flows into the filters at the top, down through the sand bed and into the collecting pipes at the bottom, and
3226 out into the reservoir.

COMMISSIONER: What separates the sand from the water?

A. There is a fine mesh down below that the sand can't get through but the water can.

Q. What kind of foundations do those filters have?

A. Sometimes they have concrete and sometimes brick. I did not put down anything for the foundations. I just put down the $6000.00 per million gallons to cover the filters and installation. That includes them just as they set.

Q. Is there or should there be any separate item in your Replacement estimate for foundations, or any other work or construction connected with these filters?

A. Not at the price I have put them at, said price being intended to cover all work of that kind.

Q. Are bids made by the filter companies on the basis of the filters installed?

A. Almost always. The engineer specifies what he wants—that is that the filter plant must be capable of filtering a certain number of gallons under certain conditions, and the filter company makes a price for the plant set up in place. That is the way I have let all the contracts on original plants—for extensions, we have frequently bought additional filters and set them up ourselves.

Q. Have you used any Jackson filters?

A. I have not.

Q. Do you know of any place where they have been used?

A. Yes, I know of one or two small places.

Q. Where?

A. One at Greensboro and one in Edenton, Georgia, if I am not mistaken.

Q. Is the Jackson Filter Company one of the large filter companies of the country?

A. No, they have made house filters, but very few filters for water works plants. They have been rather unsuccessful in their water works filters—they have not been able to retain the sand—it washes out.

3227 Q. How do you get your price of $3000.00 for the Compound Duplex two-million gallon pump at the filter station?

A. I asked the Worthington Pump Company for that through Mr. Jones of Atlanta what the price would be as of that date.

Q. Did you make that inquiry recently?

A. Since the first of the year.

Q. And he gave you the price as of the 31st. March, 1901?

A. Yes sir, and that is less than I thought it would be.

Q. How did you get your price for the boilers at the High service station?

A. Those upright boilers, I took the price as based on figures that I had seen the boilers had been sold for.

Q. Where did you see those figures?

A. In the "Engineering News."

Q. At what time?

A. Well it covers a period for some years back.

Q. Including 1901?

A. Yes sir; you understand that all of these figures I have given, I have come as near as I could in my own judgment of making the price fit into that specific time, but is very hard to say absolutely what the price would be on the 31st March, 1901, or any other date, unless the transaction occurred on that date, but I am satisfied that the figures I have given are a reasonably close approximation of what it would have cost.

Q. Did you ever use any cast iron pipe in the construction of a water plant?

A. Yes, in all of them that I have constructed.

Q. Could you give any estimate of how much you have used?

A. I suppose something like forty thousand tons.

Q. Are you familiar with the prices of cast iron pipe?

A. Yes, I have kept up with them continuously for the past twenty years.

Q. When was the price lowest in the last ten years?

3228 A. In 1897, and then we had a period of reasonable prices and then again in 1901 the price was very low and rebounded almost immediately to normal conditions; so that the date of March 31st, 1901 catches the price of pipe at one of the lowest notches it has reached in a long time.

Q. I wish you would make a diagram on a piece of paper, fit to go in the record in order to show the Court the variations of those prices.

A. I will submit it in the morning.

Q. Why have you adopted the price of $24.00 a ton for cast iron pipes as applicable to the date of March 31, 1901?

A. Because for several months before and after that date $24.00 was a reasonable price for pipe, and I did not think it fair, nor expected by any one to pick the lowest price at any one time any more than you would the highest price. Since this case has been under discussion the price has gone as high as $32.75 from that date of March 31st, to the present day. It has gone back now to $25.40 a ton.

Q. And what was it on the 30th of September, 1902?

A. $32.75.

Mr. PICKLE: The highest price ever reached?

A. Yes sir, about. I will venture the assertion that one half the pipe in Knoxville cost over $30.00 a ton. The price I have given in answer to you- question is not only the highest but on the other hand, on March 31, 1901 is one of the lowest prices ever reached, and it seemed to me to be just and to give a reasonable price, I fixed

$24.00 a ton as a fair price. It has not been as low as $24.00 a ton since the few months immediately following the date of March 31, 1901.

3229 Q. How did you get your quantity of macadam in making your estimate for restoring street surfaces?

A. I took the number of lineal feet furnished me by the water company.

Q. From whom did you get your amount of macadam?

A. From Mr. Kimball, that is the lineal feet, and I made my own allowance as to the width of the ditch.

Q. Have you been over the town any?

A. Yes, I am very familiar with it all.

Q. From what you have seen, do you regard this 205,377 ft. of macadam as a reasonable allowance?

A. Yes, I should think so; it is certainly not an unusual number of lineal feet of macadamized street in a town of this size.

Q. Now from whom did you get your prices?

A. I took the prices from my actual experience in replacing it and figured it at 30 cents a square yard put in place and maintained until the street surface becomes hard enough to stay where you put it. When the water company makes an extension and they replace this macadam, it is not only that first cost of replacement but it is the cost of going over it and keeping it up until such time as it does not show any depression. There is no question but that the water company should be required to maintain the ditches in proper shape. I have replaced myself probably, five or six hundred thousand feet of it, and know pretty close to what the cost will be, and would state that 30 cents is a fair price based on that experience.

Q. Now is there any difference in the cost of rock excavation say for a railroad cut and for a trench for a water pipe?

A. The rock in a trench will cost approximately three times what it will in a large railroad cut. I have never taken out any myself for less than $1.75 a yard, which has cost me as much as $3.00 a yard to take it out of a trench.

3230 Q. Now explain why it is more expensive to make rock excavation in a trench for water pipe than it is in a railroad cut.

A. In a large cut you can put down a hole and probably with one blast loosen up from 10 to 25 yards of rock that soon can be worked into shape to be removed. In a ditch, a rock cut in a ditch is hardly ever more than from 2 to 3 feet wide, and you have to be careful in making the blast, using a very small charge of powder. Frequently the stone has to be loosened with crow-bars and gotten out in small bits. When excavation is made in a city, blasting has to be protected with timbers, and for the above and various other causes the cost is multiplied, so that experience has shown me that the cost in water pipe trench is something like three times as great as in a railroad cut as stated above.

Q. Do you regard this $2.00 as the fair result of your experience in rock excavation?

A. Yes, it is the amount that I have always used in making esti-

mates and I have found that in some instances it goes beyond that price and in some instances it might fall slightly below, but I believe that $2.00 would be a fair price here or any other place where the rock was of similar character.

Q. In how many places have you made or supervised the making of rock excavation for water pipes?

A. Four.

Q. Where did you get your prices for wrought iron pipe?

A. From the Lombard Iron Works, the same concern I got the prices from for the stand pipe.

Q. How deep do you make your ditches for 24 inch water pipes and how deep for 4 inch?

A. 24 inch would be five feet deep and four inch about three feet 6 inches. In other words I try to have the pipe covered 3 feet as near as practicable.

Q. The sizes between 24 and 4 inches would require ditches of proportionate depth?

A. Yes.

3231 Q. How wide do you make trenches for 24 inch pipe and how wide for 4 inch?

A. 24 inch pipe would be about 4 feet and 4 inch pipe would be about 2½ feet. It has to be wide enough for a man to stand alongside the pipe and work and get down and calk.

Q. Have you made excavations of that kind, 4 feet wide for 24 inch pipe and 2½ feet wide for 4 inch pipe?

A. Yes, you can't work it in any less than that for you have to have a man on each side.

Q. What do the prices that you have allowed here for cast iron and wrought iron pipe include?

A. Well it includes taking the pipe from the cars, delivering on the ditch, furnishing all labor, lead and yarn, laying it, refilling the ditch and restoring the street surface, except in the case of paved streets, and there I have allowed extra for it.

Q. Have you made any estimate as to the cost of restoring brick paving?

A. Yes I have restored it in several cases myself.

Q. Well, have you in this replacement estimate in this case?

A. Yes, I have got 16404 lineal feet of brick restored at 50 cents a foot.

Q. Assuming that to be a correct quantity, why did you adopt the price of 50 cents?

A. Well I assumed that the trench in brick street would be at least 3 feet wide—probably would be something over that, if anything. I figured that the cost of restoring it would be $1.50 a yard which would make 50 cents a foot, that price being divided into 85 cents for concrete and the balance of 85 cents for the removal and cleaning of the old brick and replacing them, and also supplying such brick as were lost or destroyed. In work of that kind there is always a percentage of loss in the material that you take up.

Q. In making that estimate of 50 cents a foot, how did you treat the brick pavement as being constructed?

3232 A. Concrete, with brick laid on top of the concrete.

Q. Anything between the brick and concrete?

A. A filler either of cement or pitch, which would cost about the same—about 20 cents a yard for the filler.

Q. You mean a filler poured on top of the pavement after it is constructed?

A. Yes, allowing it to go down in the cracks.

Q. Suppose there was between the concrete and brick a sand cushion?

A. Well I figured on that; in other words I figured on the generally recognized construction of a brick pavement, which is a concrete foundation, sand cushion and brick, then filled with some standard filler, either cement or pitch.

Q. I believe you said you had had experience in restoring brick pavements?

A. Yes, at several places.

Q. Did you ever buy any hydrants?

A. Yes, a good many.

Q. Did you ever buy corresponding in size and construction to those used here in the city of Knoxville?

A. Yes, corresponding to every size.

Q. Have you bought large or small quantities of them?

A. I have bought them both in large and small quantities. These prices I have made, are based on purchases of large quantities.

Q. Have you any idea how many hydrants you have purchased?

A. 700 or 800 I suppose.

Q. Do you know what it costs to set a hydrant?

A. Yes.

Q. Did you purchase and set any hydrants in the year 1901?

A. Yes.

Q. What time in the year?

A. The work extended from about February until August, that I had in hand at that time.

Q. Have there been hydrants erected in all the fourteen

3233 water plants that I understand you have planned and constructed?

A. Yes, in all of them.

Q. Did you estimate the cost of the hydrants in all those plants?

A. Yes.

Q. Does this price of $30.00 include the setting?

A. It includes the transporting of the hydrants from the cars paying the freight of course on it, and setting it in place.

Q. For doing those several things is the price of $30.00 that you have allowed a fair and reasonable price?

A. Yes, that is a very reasonable price for a first class hydrants. There are hydrants in the market that you could buy at a much less price than that, which I would not allow to go in a plant that I designed.

Q. How about the hydrants used in Knoxville?

A. They are all good.

Q. Are they all the same make?

A. I don't know. I couldn't answer that. I think not, however.

Q. What is it necessary to do in order to set a hydrant after you get it upon the ground where it is to be located?

A. Well you have to have some foundation for it. The proper way to set it is on a flat stone, and when you get it in place it is connected to the main by a connecting pipe properly run in with lead, then around the hydrant is piled loose rock, or some material through which the water can pass, and then on top of this is the filling, the object of that rock being to take up the water that comes out of the vent hole when the water is shut off to prevent it from freezing.

Q. What would the hydrant itself cost delivered on the ground?

A. A hydrant of this kind would cost about $27.00.

Q. And the setting about $3.00?

A. About $3.00, yes.

Q. Where in the street is the hydrant set?

A. Usually just inside the curb on the sidewalk.

3234 Q. Then is it connected with the street main by a pipe?

A. Yes.

Q. Usually of what size?

A. Six inch as a rule; sometimes four inch; it depends on the size of the hydrant and also the size of the main from which the hydrant branch leaves.

The further taking of this deposition was adjourned until Tuesday morning, January 12th, 1904 at 9 o'clock A. M.

TUESDAY MORNING, *January 12th*—9 o'clock a. m.

Continuation of direct examination of NISBET WINGFIELD by J. W. CALDWELL:

Q. You got your number of hydrants, your numbers and sizes of gates and boxes, stop-cocks and boxes, check valves, automatic air valves &c. from the water company, didn't you?

A. I did.

Q. Where did you get your price of $125.00 for the 20 inch gate?

A. The price of all the valves from 20 inch down were based on prices that I had obtained for similar gates at other places, and also from a quotation by the Ludlow Valve Company within the past two months.

Q. Was that quotation from the Ludlow Valve Company applied to any particular date, and if so what date?

A. It was applied to the date on which the inquiry was made. I did not ask a price for the date of March 31, 1901.

Q. But your own information extended back of that period?

A. Yes, some distance back and covering that period, and as I said above the price was based upon that experience.

Q. Where did you get your information as to service connections and meters?

A. From the water company.

Q. Where did you get your prices as to meters and meter boxes?

3235 A. From my own experience in other places.

Q. Have you purchased and set meters and meter boxes?

A. A good many thousand.

Q. Where did you get your price for restoring cem-nt side-walk?

A. From experience in other places.

Q. What is the total of your pipe cost as allowed in this Replacement estimate—the pipe itself-

A. $147,024.00.

Q. That is the cast iron pipe?

A. Yes.

Q. Suppose that the date of this inquiry had been May 1st, 1900 or put it March 31, 1900, about what would that pipe have cost?

A. I have only gone back here to May 1st, 1900, and at that date it would have cost $153,150.00.

Q. What would it have cost March 31, 1902?

A. $184,780.00.

Q. At the dates indicated in your last two answers would there have — a variation of prices in other materials used in water works construction?

A. Yes.

Q. Do you put in your Replacement value, treating it as representing the actual equitable value or invested value of this water plant which is to be determined in this case?

A. I have not.

Q. Are there other elements and questions to be considered in determining actual value?

A. Besides the cost of replacement, there are a number of elements which enter into the cost of a plant, such as the administration services, the capital which was unproductive during the course of construction, the period at the beginning of the operation when the income wasn't sufficient to cover expenses, and the value of the finished plant from a dividend earning standpoint as against

3236 one which has just been put in operation.

Q. If we should assume that there is a deficiency in income for payment of proper interest charges, depreciation and expenses on the invested value of this plant properly ascertained as of March 31 1901, what disposition of it should be made in this case?

A. The amount should be paid the investors from the earnings of the plant.

Q. You have testified that you have planned an- constructed I think fourteen water works?

A. Yes.

Q. Now without going into minute details, state generally to the Court what work you did both in planning and constructing each of these plants—I do not mean specifying each one of them, but generally the line of work required in such professional service.

A. The first step to be taken, and which I followed in each case, was to make an investigation of the situation and prepare a detailed report of the best mode of construction and my advice as to the supply and all other details which would enter into water works constructions. After this report was submitted and adopted by the authorities, whether they were officers of a municipality or private company, I would prepare detailed plans and specifications for all parts of the work. After those were prepared bids were taken and gone over in order to determine which was the lowest and best bid. After that was determined, the contract was let and as soon as work commenced, inspectors were put on all parts of the work where it was necessary—all material was inspected as it came upon the ground; in many instances inspection was made of pipe and other material at the place of manufacture, the proper grades, lines and levels were furnished as the work progressed, and after the completion of the work a complete test of the finished plant in every
3237 part was made. If the *pa*lnt came up to requirements, the detailed estimate called final estimate, was prepared on which a settlement was made and detailed plans for filing, showing the work just as it had been constructed, were prepared. After this was done and the work was accepted, the engineer's work is considered complete.

Q. Does it require technical engineering knowledge and skill to do this work you have thus indicated.

A. Yes, in some instances the highest kind of skill is required to do the work properly and to save the purchaser from loss.

Q. Where you have had inspectors of *type* &c. who paid the inspectors?

A. I did.

Q. Does that inspection come within the duty of the engineer?

A. Yes, an engineering fee such as I have figured in my estimate is intended to cover and does cover all costs of engineering and inspection of every character, including if necessary an analysis of the water and of the pipe, metal, and any and all other expert work which is necessary to determine whether or not the contract is being complied with.

Q. The following is the statement in the replacement valuation fixed by Messrs. Nixon and Brown on the storage reservoirs: earth excavation 10,000 yards at 15 cents, $1500.00, concrete bottom and sides 5110 square yards (one inch thick) $2044.00, 800 feet of wire fence $105.00. I do not ask you as to whether or not you agree in quantities and prices, but do the four items that I have just read to you include all the work that would be necessary to construct those reservoirs properly?

A. It would not.

Q. State what elements of construction these gentlemen have omitted from their valuation and analysis of the reservoirs.

A. It would be necessary to prepare the ground for the reception of the bank, and it would also be necessary to puddle the sides and bottom to enable a lining 8 inches thick to be serviceable.
3238 Concrete 8 inches thick will not hold water of itself but must have some backing to stop the water which percolates through.

Q. Does the item 10,000 yards of earth excavation cover all the earth work that would be necessary?

A. According to my measurements and calculations there were 13,000 yards removed in making the reservoir proper, and in addition to this there were other excavations necessary to prepare for the reception of the bank, that portion of it I have put in in a general item of $1000.00 for preparing the ground.

Q. Does the mere statement that there was a given quantity of earth excavation express all that had to be done with that earth, or was there other treatment of it required in addition to the mere excavation?

A. Any bank which is intended to hold water has to be specially prepared to resist, not only the pressure from the water but the percolation, and in order to render the bank safe it is necessary to compact it in such a way that the bank will be when completed, practically as solid as it was in the original formation. This is done by rolling, wetting or puddling, and it is these latter items which increase the cost of excavation of embankments for reservoirs.

Q. In your judgment is it practicable to excavate the earth, to build and complete the embankments at a cost of 15 cents a cubic yard for the earth excavation, or was it so possible on the 31st March, 1901?

A. That is lower than I have ever known any work of this character to be done and in my opinion is much below what work of that character will cost.

COMMISSIONER: Mr. Wingfield, I would like to have you give me your idea either in per centage or otherwise as you can best express it, the difference between the value of a new plant a du-li-
3239 cated plant, and a plant actually in existence.

A. New plant ready to start.

COMMISSIONER: Yes, just like this one, only duplicating this in every part.

A. I don't consider that there is any difference between the plant just as it stands and a new plant, or practically none, for the reason that in water works plants it is almost invariably the rule that the machinery and other appurtenances become obsolete and are removed and replaced with other machinery before the time has expired to render them unfit by wear. The depreciation account in a water works properly kept up, is very small.

COMMISSIONER: Your idea is then that the depreciation would go to what had become obsolete and not to what had worn out or rusted out.

A. Yes, or in other words what had already been removed. Take this plant right here, my idea of depreciation account is the expense that the company has been put to in the matter of that which is obsolete or too small to put in the present plant.

3240 Cross-examination by G. W. PICKLE:

Q. Mr. Wingfield, you have stated that you came here to Knoxville on Tuesday the 15th of December for the purpose of investigating this plant and testifying in this case on behalf of the water

company and remaining until the following Saturday. What time did you arrive on Tuesday?

A. About 1:30.

Q. What did you do the remainder of that day?

A. I visited the pump station and the filter station.

Q. What did you do on Wednesday?

A. I measured up the pump station.

Q. And what on Thursday?

A. I measured up the filter station.

Q. And what on Friday?

A. I inspected and measured the Lonsdale stand pipe and went through the items of pipe lines and hydrants which were furnished by the company.

Q. What did you do on Saturday?

A. I finished getting up the data from the company on the various items which I have testified were furnished by them.

Q. Well now did you make up a statement while you were here that week in connection with Mr. Ludlow?

A. Yes.

Q. Have you that statement?

A. No sir, that statement was merely a memoranda which we left out as we made the calculations. You understand that these inspections and measurements were taken each day and during the night. Mr. Ludlow and myself sat up from 1:00 to 3:00, figuring what we had measured during the day.

Q. Were you not ready with your statements either on Thursday or Friday of that week, and gave the Commissioner and Coun-
3241 sel on the other side notice that you were ready to present you- statement?

A. I would have gone on the stand then, and would probably have testified practically the same as now. I took the time however between then and now to check over all the items that we had worked on, and I changed four or five of them, which I found after an investigation were probably incorrect on account of a too hurried examination.

Q. Were you not ready and willing, if other witnesses had not been on the stand, to have given your testimony as early as Friday morning?

A. As I said awhile ago, I was perfectly willing to go on the stand at that time, and I would have made my statements practically as I have made them now.

Q. You and Mr. Ludlow had your statement made up then?

A. We had each made up a statement which we had arrived at up to that time.

Q. In what respect did you change that statement?

A. I changed it in the brick work, in the concrete, in the filters and I believe in the pumps.

Q. What was the effect of your change on that statement?

A. I lowered the price about $30,000.00.

Q. On what?

A. On the totals. I lowered it on each item that I changed.

Q. Then the original statement you had made up was in the aggregate of $30,000.00 more than the present one?

A. About that.

Q. Did you do that lowering before you left Knoxville or afterwards?

A. It was about a week after I had left here, and after I had checked over each item at home, and after I had had some correspondence with reference to the prices.

Q. Did Mr. Ludlow assent to that lowering?

A. Yes.

Q. Did he assent to the original statement which was $30,000.00 higher?

A. Yes.

3242 Q. You haven't seen Mr. Ludlow since then, have you?

A. No.

Q. Then how did you get together?

A. I made the last estimate myself showing the changes and sent it to him at Winston.

Q. Did he assent to it?

A. Yes.

Q. Did he suggest any changes?

A. No, sir.

Q. He assented to it as you sent it to him?

A. Yes.

Q. And he as readily assented to the original one which was $30,000.00 higher?

A. He acted in the matter exactly as I did. At the time we made up the original statement there was nothing to indicate that it wasn't the right one. It was only after checking over quantities and prices that the change was made, and I called his attention to each item in which a change was made.

Q. When did you complete your revised state- Mr. Wingfield and forward it to the Water Company here?

A. On January 2nd, 1904.

Q. Now if I understand, if you had testified as you expected to do, and proposed to do on Friday of the week you were here and presented your statement, then it would have been $30,000.00 in the aggregate higher than it is now?

A. Yes.

Q. Now, Mr. Wingfield, how often have you testified in Water Rates cases?

A. Only once before in a Rate case.

Q. When and where was that?

A. That was in Chattanooga; I don't remember the exact date; it was in that Water Rate case there the records will show the date.

Q. Well it was about 1900 wasn't it?

A. About that, yes, sir.

Q. You testified in that case on behalf of the Water Company as you are doing in this case?

A. Yes.

Q. Your employment has been altogether in this respect on behalf of the water companies, hasn't it?

A. As far as the rate cases are concerned, yes.

3243 Q. You have represented the American Water Works & Guaranty Company, hav-n't you?

A. Yes.

Q. For how long?

A. I represented them for six years.

Q. During what date?

A. From 1887 to 1893—that is six years.

Q. That was a holding company, that was organized to hold a number of water companies?

A. Yes, their business was to own and operate water plants.

Q. How many did they own at that time?

A. Forty eight when I left them.

Q. Much of the work you done was investigating water plants and attending to water plants for that company wasn't it?

A. Yes, a good deal of it was for that company; propably 25% of the work that I have done was for that company.

Q. You represented that company as weel as the local company at Chattanooga in testifying in the Chattanooga case, didn't you?

A. Yes; I built the Chattanooga plant—planned it, superintended the construction and paid all the bills through the Chattanooga office and for that reason I was more conversant with actual conditions than any one else.

Q. Well, by whom were the bills paid, since you have mentioned that?

A. By the City Water Company—by me as treasurer.

Q. What per cent. was added on to them by this holding company?

A. None at all at Chattanooga; I don't know what was done in the general office.

Q. Wasn't 15% added on to them?

A. No, I don't know that as a fact for I had nothing to do with the books of the American Water Works and Guaranty Company.

Q. Well, don't you know that that holding company and all these holding companies do get a per cent. out of the price charged up by the local company?

A. I couldn't answer *e*nven with reference to the American

3244 Water Works and Guaranty Company for I don't know. The city water company was operated as an individual plant, the Water Works and Guaranty Company appearing only as stockholders.

Q. It was likewise a stock-holder in the filter companies and cast iron pipe companies that furnished the material for water works?

A. It had no interest whatever so I have been informed by Mr. Kuhn, the general manager, the whole business being confined to the owning and operating of water works plants.

Q. Well, now don't you know that 15% was added on to the price paid by the local company from information you got there?

A. I do not. There may have been 15% and there may have been 100%.

Q. Well, Mr. Wingfield, you will not deny that you are a pretty high expert and fix pretty high rates on engineering services and prices of plants, ain't you so regarded and don't you so regard yourself?

A. Yes, my experience having shown that to do work properly it is necessary to pay a reasonable compensation. My prices include only a reasonable compensation as adduced from actual experience.

Q. Well, now Mr. Wingfield, you made a statement of the replacement cost and value of the Chattanooga plant, did you not?

A. Yes.

Q. And your estimate of that cost of replacement was between $360,000.00 and $400,000.00 more than the Court and Commissioner fixed the value of that plant, wasn't it?

A. I don't know what the Court fixed. I have never seen the decision. I know my estimate of valuation was a good deal less than it actually cost.

Q. Well, don't you know, to be precise about it that your replacement cost was $365,000.00 higher than the Court and Commissioner fixed the value of that plant?

A. I don't know, for I don't know how the fact is.

Q. You and Mr. Ludlow were pitted against each other in
3245 that case, Mr. Ludlow representing the City and you representing the Water Company?

A. Yes.

Q. Your estimate of replacement in that case was nearly $400,000.00 more than Mr. Ludlow's estimate in the same case, wasn't it?

A. I think so; it is probable that Mr. Ludlow wasn't as familiar with that plant as I was.

Q. Well, you spent something less than a week here, as you have stated in going over this plant and making up a statement. I will ask you how long ought a competent engineer to be employed in planning and making specifications for a plant like this?

A. It would probably take him several months to complete the plans. It would have taken me a good deal longer than a week to have gotten the data I did take without the assistance of the water company. There are so many items which go into the plant about which there is no controversy that it would have been foolish to have taken up the time necessary to check those items.

Q. Well, about how long would it take a competent engineer to mature the plans and specifications for a plant like this?

A. About two months.

Q. How long ordinarily, or should be ordinarily occupied in building a plant of the magnitude?

A. About a year.

Q. As regards conditions, Mr. Wingfield, to be encountered at Chattanooga as compared with Knoxville as to engineering problems and construction, are there not greater obstacles at Chattanooga than at Knoxville?

A. No, the conditions are very similar. The topography of the two cities is very much alike; the conditions are very much alike and in most instances all conditions are at least somewhat similar in both places.

Q. Your acquaintance however with conditions at Knoxville is quite limited is it not, Mr. Wingfield, except such as are
3246 merely superficial.

A. Well, the conditions that exist here would be apparent to any one who is familiar with that kind of work on examination. I have been very intimately acquainted with Knoxville for twenty five years and have kept track pretty closely with the water company here and improvements made.

Q. Well, I believe you state that you investigated this plant at one time for this Guaranty Water Works Company?

A. Yes, sir.

Q. Did you make a written report?

A. Yes.

Q. Have you a copy of that report?

A. No, I haven't it.

Q. What was the date of that report?

A. About 1890.

Q. Now, Mr. Wingfield, you and Mr. Ludlow in your estimate of the replacement cost and value of this plant are very widely apart from Messrs. Nixon and Brown. We will take up some of the items which you seem to have differed about. I notice that you allow 16% for engineering and contingencies, which you explain to mean 6% for engineering and 10% for contingencies. Now I will ask you to state what is the aggregate amount that you have allowed for engineering and contingencies in your statement, and what is the amount for each engineering and contingencies separately?

A. I make it $80,466.73.

Q. I ask you how much is engineering and how much is contingencies?

A. In round numbers-, $30,000.00 for engineering and $50,000.00 for contingencies.

Q. Now you have not included in this $50,000.00 for contingencies the $2000.00 special contingent allowance for bad bottom of the reservoir have you?

A. I have not.

Q. That would increase the amount of contingencies to
3247 $52,000.00 wouldn't it?

A. Yes.

Q. Now will you state precisely what you intend that allowance for contingencies to cover, Mr. Wingfield?

A. It is to cover accidents, increased cost of work from any one of a number of causes which might occur.

Q. Anything else?

A. Nothing, except of that character; it means any and all increases which you usually find occurs beyond the amount originally calculated upon. Another way to express it is "extras"—things that cannot be forseen until the necessity for them arises.

Q. Well there shouldn't be very many extras in a properly devised and contracted plant except such as the contractor would be paid for extra, should there?

A. Not a great many, but it is for that item that a part of the contingencies is designed for—amounts paid in excess of the figures originally calculated upon.

Q. What per cent. did you allow in the Chattanooga case for engineering and contingencies?

A. 10%, I think it was.

Q. You testified in the Chattanooga case in January and July or August, 1900, didn't you?

A. I think that was the date.

Q. And you fixed 10% as the basis of engineering and contingencies in that case?

A. Yes.

Q. Now suppose you would fix the same basis of 10% for engineering and contingencies in this case, how much would that reduce your allowance on that account in this estimate?

A. $30,000.00. My reason for making the difference between the two places was, that at Chattanooga on account of having constructed the plant myself, I was able to put into my estimate
3248 a great many things which I knew to exist under the ground, which did not appear on the surface, thus reducing the amount which would probably be expended in the way of extras.

Q. Well you don't know but what the same thing was done here do you, as you were not present during the construction of the plant?

A. The probabilities are that in my estimate here I have missed getting something that ought to have gone in the cost of duplication, and for that reason the amount of contingencies should be larger than in a case where I was perfectly familiar with conditions.

Q. Well are you equally liable to make them excessive on account of your information as to make them too little?

A. As I figured only what I saw and measured, with the exception of the pipe line, over which there is no controversy, it is not probable that anything could have gone into the estimate that wasn't there.

Q. At any rate, if you had applied the same per cent. to wit: 10 per cent. for engineering and contingencies in this case that you applied in the Chattanooga case in the preceding year instead of 16%, your allowance for engineering and contingencies would have been at least $30,000.00 less than what they are?

A. Yes.

Q. Now how did you divide the 10% in the Chattanooga case between engineering and contingencies?

A. I made no division in that case.

Q. Well how did you intend it to be divided?

A. 5% — contingencies and 5% for engineering.

Q. Now you have allowed the 16% for engineering and contingencies upon the price of pipe and upon the price of all other machinery as well as upon all other material and labor in this case?

A. Yes.

Q. Now you didn't do that in the Chattanooga case, did you?
A. I don't remember about that; I think I did.

Q. Now didn't you exclude the pumps and filters and some
3249 other things from that expense for engineering and contingencies?

A. The prices of my items named in the schedule at Chattanooga were large enough to cover all items of that kind; in other words, the value of each item was made the value in place, including the cost of engineering and contingencies.

Q. I repeat the question, didn't you exclude, because you didn't deem it a proper basis for an allowance of engineering and contingencies, the price of filters, engines, boilers and such machinery as that in the Chattanooga case?

A. I did not.

Q. Well Mr. Wingfield, I will ask you to look at your deposition in the Chattanooga case which I now hand to you, April 19th 1900, and state whether or not on page "33" of your cross examination of that date, you have stated that you did not add 10 per cent. on the pumps "as that was the estimtae of their value at the present time, taking into consideration the wear and tear due to their use?

A. I did.

Q. That 10% referred to there is the one for engineering and contingencies, is it not?

A. Yes, the price of the pump however, included installation which of necessity included the engineering and contingencies.

Q. Well you mean exactly what you say by your language there "as that was the estimate of their value at the present time, taking into consideration the wear and tear due to their use"?

A. Yes.

Q. Now on page "34" of the same deposition, I will ask you to state whether or not you stated that you treated boilers in the same way as pumps in regard to this matter of adding or omitting to add the 10% for engineering and contingencies?

A. I did; the estimate for boilers being made in the same way as
that for pumps; that is, in a lump sum, including boilers,
3250 settings and all other expenses including contingencies.

Q. And did you not in the same deposition make the same statement with reference to filters as shown on page 43 of your deposition.

A. Yes.

Q. You did not allow the 10% for engineering and contingencies on real estate in that case, or in this, did you?

A. I did not in this case, and as I remember it I did not in the other.

Q. What is the amount of the 16% on the cost of pipes alone as allowed in your present estimate in this case for engineering and contingencies?

A. $23,520.00.

Q. Now your estimate purports to put pipe at $24.00 but when this

16% is added into the price of pipe what does it make it per ton in your estimate?

A. $27.84.

Q. This pipe is supposed to be delivered f. o. b. cars at Knoxville according to the usual custom, is it not, and at the risk up to the time of delivery at Knoxville of the pipe company?

A. Yes, the contingencies in pipe to a large extent means the waste and loss; in laying at every intersection a pipe has to be cut to fit into the connection with the other street, and the percentage of loss is quite large. The contingencies would also cover any variation in the price of the pipe. It has varied so largely during the past ten years, that no price that you could agree on would probably be the correct price, without taking into consideration all the conditions.

Q. So you make this contingency upon the price of pipe cover variations of the market, do you?

A. To some extent, but largely to take care of the waste and loss in laying. The amount of pipe in this system is figured by lineal feet actually laid in the ground, and therefore no estimate has been made for the loss in laying except in the matter of contingencies found in my price for pipe.

3251 Q. Well now if you fix the price of pipe at $24.00 flat as you have done, and take off this extra 16%, you would reduce your estimate on that account over $23,000.00 wouldn't you?

A. If the entire allowance for engineering and contingencies were taken off it would be reduced $23,520.00. The price of pipe however will have to stand its proportion of the cost of engineering and all other costs incident to installation.

Q. Well now suppose that you take the 16% off of your boilers and engines, what would that amount to?

A. $8282.00.

Q. Boilers and engines are ordinarily put in under the supervision and at the risk of the manufacturers are they not?

A. No sir, very rarely.

Q. Do you know how the fact was here at Knoxville?

A. I do not.

Q. Well suppose they were put in under the supervision and at the risk of the manufacturer and to be paid for only upon installation and satisfactory service, would you allow this 16% against it?

A. I would, but I would allow it in another way, and that is by increasing the price I have allowed there for the pumps and boilers, with the exception of the engineering expense, which I would allow in any instance.

Q. You would increase the price would you?

A. Yes, to cover the incidentals.

Q. Well now how much have you allowed on filters as representing this 16% for engineering and contingencies?

A. $4,800.00.

Q. Well now those filters were installed by the filter makers were they not, and at the price you have put them in your estimate or less?

A. They are usually installed by the filter makers, but the
3252 price I have put them at is less than the maker's price for the completed plant.

Q. Well what price have you put them at?

A. I have placed them at the capacity per million gallons and fixed the price at $6,000.00 per million gallons.

Q. Well what is that per individual filter, is what I want to know.

A. $1,666.00.

Q. In the information that the water company gave you, did they tell you that in point of fact those filters were bought at less than $1200.00 installed as shown by their books and receipts?

A. No, I had no information at all as to what they cost. I have never seen an account of the cost nor has any one ever told me. I am now ignorant of what the water company paid for them.

Q. Well if in point of fact the water company paid for four of those filters including therewith 13 sets of new teeth with other filters only $4800.00, you have put them too high for even new filters?

A. Not necessarily; as I understand the cost of this has nothing to do with it; otherwise you would allow all other things in proportion.

Q. But you*n* agree that the period fixed March 31st, 1901 is one of the lowest in water works material?

A. Yes for pipe it is in any event.

Q. Isn't it so with reference to other machinery going into the construction of water works plants?

A. Yes I think it is. All machinery and kindred material are affected directly by the price of pig iron. All prices that I have made are absolutely independent of any cost price to the water company

Q. In your and Mr. Ludlows' estimate of replacement I find
3253 the following items: 3910 service pipes in macadam and dirt streets at $8.00, $31280.00; 413 service pipes in brick streets at $18.00 $7484.00, making $38,714.00*0* for services alone. Now this allowance is made by you on the assumption that the services are put in by the company and belong to the company and not put in at the expense of consumers and the city and belong to consumers, is it not?

A. Yes.

Q. Now suppose or assume the fact to be Mr. Wingfiled that all services except 427 of this number were put in at the expense of consumers and not put in in brick streets at all, any of them, how much would your estimate on this account be reduced, allowing only for the 427 that we assumed were put in by the water company?

A. In your question you mean to assume that the water company has been put to no expense whatever in connection with those services?

Q. Yes, that they were put in at the expense of the consumer except 427 of them.

A. If the item of expense for services by the water company is eliminated entirely except as to the 427 laid in the streets not paved, the total cost according to my estimate would be $33,316 instead of $38,714.00, making a difference of $35,398.00.

Q. Then if the facts are as I assume them in the preceding question your aggregate in your estimate would be reduced in this account the sum of $35,000.00?

A. If the water company has been to no expense at all, of course they are not entitled to the amount I have allowed for services. I put it in that way, because even where services, on the face of it, are paid for by the consumer, there is frequently still a large cost to the water company.

Q. On the other hand if your allowance of $8.00 is excessive on 427, the deduction on this account should be increased above
3254 the amount you had stated.

A. Yes.

Q. Now in the Chattanooga case you allowed nothing for services in your estimate of replacement cost and value, because the services belonged to the consumers and were put in at their expense?

A. That is so.

Q. Did you go over Mr. Wheeler's estimate of the cost of this plant up to March 31, 1901, as found in Vol. 1., of the evidence in this case?

A. Yes.

Q. Now isn't it a fact that he only claims about $5400.00 on account of services put in by the company up to that date?

A. I don't remember that item.

Q. Now going Mr. Wingfiled to the subject of excavation at the River station, and first in regard to the earth excavation, Messrs. Nixon and Brown have found that there were 1807 cubic yards of earth excavation at this point. Mr. William Wheeler has estimated that there were 2269 cubic yards at this point in his estimate of fair construction cost in this case. Now I see that you and Mr. Ludlow have gotten 3600 cubic yards of earth excavation at this point, have you not?

A. Yes.

Q. And 1954 cubic yards of yourself and Mr. Ludlow's estimate are designated as being around the station. What do you mean by that—just the surface around about the station, leveling it down, or what?

A. The station is placed on a side hill, and in order to make room for it an excavation was made back into the face of the bluff. The measurements for excavation would necessarily be arbitrary, as there was nothing to indicate the exact point at which the excavation commenced and the fill commenced. In making up our estimate, we took the measurement on the west side of the station 50 x 50 x 15 which seemed from the general surroundings the amount of
3255 excavation made. From the face of the excavation appeared to be at least one third rock showing so, that in figuring it we called it one-third rock and two-thirds earth, which made 463 yards of rock and 926 yards of earth. Back of the station the measurement was taken in the same way, being 100 x 20 x 15, three-fourths of which we assumed to be rock and one-fourth earth, the face of the cliff at that point, showing nearly solid rock. East of the station we had 75 x 30 x 9 all earth. That is the way the estimate was made of earth and of rock excavation around the station.

Q. Now Mr. Wingfield, inasmuch as you have gotten about twice as much earth excavation at this point as Messrs. Nixon and Brown

and have estimated over 1300 cubic yards more than Messrs. Wheeler and Kimball, the president and general manager and the supervising engineer of this company, isn't it suggested to you that you have probably made a mistake in your estimate here, made an over estimate.

A. I think not, and I base that statement on general experience, and that is in the excavation for a structure of any kind, the amount of excavation is largely in excess of what will show after its completion and the earth is filled around. As far as the discrepencies shown in the various estimates are concerned, I have nothing to indicate how the other gentlemen got at their measurements, and as I said a moment ago, the whole thing is really arbitrary, and a matter of judgment as to what was taken out.

Q. Well, you had no knowledge of the situation before the excavation was made by which to govern you; nothing in regard to it?

A. The engineer gave us information on the points we asked for. The excavation, as we found it we took for ourselves and guessed at it by seeing the depth from the building back that the wall had been dug.

3256 Q. Who was the engineer that gave you this information?

A. I don't believe I can recall his name. It was an engineer at the pump station.

Q. In the employ of the water company?

A. Yes.

Q. Well now passing from earth excavation at this point to rock excavation, you and Mr. Ludlow have estimated the quantity at 2608 cubic yards, while Mr. Wheeler has placed the same at 2193 cubic yards in his evidence, and Messrs. Nixon and Brown at 1735 4/10 cubic yards. Now doesn't the fact that you so far exceed not only Messrs. Nixon and Brown, but Mr. Wheeler and Mr. Kimball, that it suggests to you that you have fallen into the same error as to rock excavation here.

A. I think not. Those estimates are the judgment of both Mr. Ludlow and myself carefully figured from measurements.

Q. Did you have any photographs of the condition that existed there before this excavation began?

A. We did not.

Q. The water company officials did not afford you the opportunity to examine the photographs they have here in the office of that situation?

A. I did not know that any were in existence and there was no necessity for them that I can see. We did not call for them.

Q. Wouldn't they have aided you?

A. Yes, if the photograph had been taken before the excavation had been made?

Mr. CALDWELL: I object to the assumption of fact in the last question that we have photographs of the situation before the construction began.

Q. Mr. Wingfield, did you make any inquiry among the contractors or plumbers or otherwise of the prices for earth and rock excava-

tion in Knoxville, or the prices at which this work was done?
3257 A. No I did not.

Q. Did you know the fact or have any inclination of it that it is in proof in this case? that this rock excavation was done as a whole, including the tunnel, at $1.10 a cubic yard?

A. I had no knowledge of that.

Mr. CALDWELL: We except to that question. If counsel wants to put a hypothetical question or assume a state of facts, that is all right but we don't agree upon that statement of facts of course; we therefore except to the statement that it was done—$1.10 or so shown in the record.

COMMISSIONER: It will not be treated as proof.

A. My estimate of rock excavation included enough beyond the pits and tunnels to allow the linings to be put in and backed; figuring the excavation just as it shows, either the price of rock would have to be increased or the quantities would have to be increased enough to show the exact amount taken out.

Q. Well now going to the reservoir which you and Mr. Ludlow estimate at $24,821.64 and with the engineering and contingencies added $28,769.90. I notice that your first item is excavation and embankment 13000 cubic yards at 40 cents, making $5,200.00 for excavation and embankment. Now were you aware when you fixed that quantity of excavation and embankment at that price that the books of the water company showed that the amount of excavation and embankment was 10,000 yards and that it was done at 12½ cents a yard, and that these facts were likewise proved by the contractor who did it?

A. I had no knowledge of that fact. My estimate of the price being based absolutely on my experience in similar work in other places.

3258 Mr. CALDWELL: We don't concede that the record establishes the fact as stated in the question, and I don't care to be making an objection to every question asked, although I do dissent from that method of asking question-.

Mr. PICKLE: I only wanted to know what knowledge he had of these things.

A. I can say that I have never seen it, nor have I any knowledge whatever of any charge or cost to the water company.

Q. Did you or do you now know what competent plumbers and contractors at Knoxville would place such work per yard?

A. I have not.

Q. I notice that you have an item for preparing hill side for embankment $1000.00. Now if the fact is or was that this property had been cleared off by the city and the excavation begun before the property was transferred to the water company, and that work paid for by the city and not done or paid for by the water company, would you still *am*ke this allowance of $1000.00?

A. I would, because I don't see a particle of difference who does the work or who pays for it if it was necessary.

Q. But I am assuming that it was done before the water company became the owner of the property?

A. I understand your question and I still say that my price is the cost of duplication of the present reservoir, and includes all work that would have to be done on it from the very inception whether it was done by the city or the water company.

Q. Suppose no such work was necessary or done by the water company, would you still allow the $1000.00.

A. If it had been done by anyone, I would.

Q. Suppose Nature had left the spot that way, would you still allow it?

A. I would not, but that would be a unique spot on the
3259 face of the earth.

Q. Suppose the city had done this and actually paid for and charges it, would you still allow it?

A. I would.

Q. What kind of work is that?

A. It is clearing off of all vegetable growth, and the surface made level by plowing it and making trenches so as to prevent the water from finding its way beneath the bank.

Q. Well now what sized place was that to be prepared up there?

A. It is the whole reservoir site except the bottom.

Q. Well I wanted to know the size of the place where this plowing had to be done.

A. The bottom of embankment on which preparation would be necessary covers about two acres of land.

Q. Well now that had to be plowed up and the surface removed?

A. Yes.

Q. On two acres of land?

A. Yes, carted off.

Q. How deep was it?

A. As deep as the vegetable soil went; six or eight inches, possibly a foot, and after that is done you dig it into ridges.

Q. Now doesn't that ordinarily go into the excavation under a contract for excavation?

A. By the yard you mean?

Q. Yes.

A. In some cases it does; I haven't allowed for it however in my estimate in the cost of excavation.

Q. And you think it would take $1000.00 to plow up the surface prepare it, and rake off the two acres?

A. I figured my excavation trenches from 2 to 4 feet deep around in addition to the removal of the entire surface and placed the total probable cost at about $1000.00.

Q. And you would make that allowance whether it was necessary to be done or not?

3260 A. No sir, I would not if it was not necessary, but if it had been done by any one for that purpose, I would.

Q. If the city had done it and allowed nothing for it, you would still allow the water company $1000.00.

A. I would.

Q. But if it was not necessary to be done, you would not allow for it at all?

A. No sir.

The further taking of this deposition was adjourned until 2 o'clock p. m.

2 O'CLOCK P. M.

The further cross-examination of NISBET WINGFIELD resumed.

Continuation of cross-examination by Mr. PICKLE:

A. In making the statement that there was $30,000.00 difference between the total valuation as figured by Mr. Ludlow and myself before leaving Knoxville in December, and the schedule filed in this case, I was going from memory only, and I now desire to state that the exact difference was $9499.00, the statement filed being that amount less than the preliminary statement referred to.

Q. And this $9000.00 was the only change made by you and Mr. Ludlow in your statement that you were ready to submit on Friday morning of the week that you came here, was it?

A. We were not ready to submit any statement on Friday of that week.

Q. Wer-n't you ready to go on the stand on Friday of that week?

A. I wasn't ready to have gone on, but would have gone if it had been necessary, and would have testified practically to what I have testified to now, with the exception of the discrepancy of $9499.00.

Q. What was this change in regard to $9000.00—what did
3261 it refer to?

A. It was made up of various items. One was the brick work at the pump station and filter house; another was a reservoir lining, another was the filter plant—the above changes being determined after I had obtained more specific data as to the cost of several items as of date, March 31st 1901.

Q. You made the changes and submitted them to Mr. Ludlow who assented to them?

A. Yes.

Q. Now returning to the storage reservoir at adjournment we were inquiring—the item of $1000.00 in preparing hill side for embankment; you stated that there were about two acres it was necessary to clear off. How much or what part of an acre did this reservoir in fact occupy; I mean the excavation?

A. About one acre.

Q. About one acre?

A. Yes, both of them.

Q. In speaking of the reservoir, I wish to be understood as speaking of the whole?

A. Yes.

Q. Well it would not be necessary to clear off more than was occupied by the reservoir, would it?

A. No, the reservoir embankment though occupied much more than one acre. I understood your question what portion was excavated for the reservoir.

Q. Yes, that is right. Well the embankments were simply to be filled and tamped, that was all?

A. Yes.

Q. Now as I understand, you don't know that a single dollar was devoted to this purpose in fact, do you?

A. I do not. I have stated several times in the course of this testimony that all items that I have figured on were based on the experience that I have had in similar constructions in other places and not from personal knowledge and not from the actual

3262 expenditures made in Knoxville.

Q. And without actual knowledge of prices prevailing in Knoxville so far as labor and material purchases here are concerned?

A. I have obtained prices on all material that enters largely into the construction, such as brick, lime, cement and stone.

Q. From whom did you obtain those prices?

A. From the water company.

Q. From whom of the water company?

A. Mr. Kimball.

Q. In other words you obtained your information from the plaintiff in this case?

A. Yes, based on just what they had paid of the date under discussion.

Q. As they told you?

A. As they told me.

COMMISSIONER: Well was that information derived consistent with what you knew of your own knowledge and from general experience?

A. It tallied with it exactly.

Q. That is you and Mr. Kimball agreed exactly on prices, did you?

A. Mr. Kimball's prices agreed exactly with the prices I had obtained for similar work at other places.

Q. You did not consult disinterested contractors, builders, or other persons in regard to these matters in Knoxville?

A. Not in Knoxville.

Q. And you did not read or undertake to read the testimony in this case on those matters?

A. I have not read any of it at all.

Q. Now passing to another item under the head of storage reservoir—I mean the item of concrete and brick lining 47,195 square feet at 30 cents $14,150.00. How many cubic yards did you say there were in this concrete and brick lining; I desire you to reduce it to cubic yards.

A. 1167 yards.

Q. Well now I will ask you to state further at what price

3263 per yard you have figured this concrete and brick lining in order to make this item of $14,158.80?

A. I have figured the lining of concrete 8 inches thick at $8.00 per yard in place, and on top of this have figured for cement plaster somewhat similar to that used in cement walks; the two items combined making the price of 30¢ per foot.

Q. My question however is, how much is it per yard for the 1176 yards of stuff—you figured it by the foot, now I want you to figure it and give me the price per cubic yard?

A. $12.00.

Q. Even?

A. $12.10 per yard, that is not counting anything for the plaster or the pavement you might call it, on the inside.

Q. $12.10 a yard for this concrete and brick lining?

A. Yes.

Q. Now you had some similar work to that in the clear water basin at Chattanooga didn't you?

A. Yes sir, it was brick but not plaster.

Q. Didn't you have some concrete work in the clear water basin also?

A. Yes, there was concrete in the bottom of the clear water basin, and the sides were made of concrete.

Q. It was work precisely of this character and intended to serve entirely this purpose?

A. No, the two constructions were not alike.

Q. Well, wasn't the one at Chattanooga sufficient for the purposes for which it was intended?

A. Oh yes, but the walls of the clear water basin at Chattanooga were made of solid concrete, three feet thick, and the bottom was covered over with a layer of concrete I think about 8 inches thick.

Q. Well it was intended to be water-proof and sufficient to hold water just as this one here?

A. Yes sir.

Q. Now what did you figure concrete and brick work in
3264 the Chattanooga clear water basin at?

A. I cannot answer that off-hand; I don't remember.

Q. Well it ought to have been about the same as this here, oughtn't it?

A. No, I think not. I think the walls or sides in Chattanooga case would have figured about the same as this.

Q. Well it ought to have figured about the same per yard?

A. Oh no, a concrete wall three feet thick cannot be compared with one 8 inches thick.

Q. Why not?

A. Because the cost of placing the thin-er lining is very much in excess of the other, in labor.

Q. In the labor?

A. Yes.

Q. Well how much difference ought there to be in the matter of labor to the yard?

A. There would probably be $2.00 a yard of difference in making a heavy abutment such as that was and a thin lining.

Q. This was not a very thin lining here being 8 inches?

A. Well it is called a thin lining in comparison to a heavy wall.

Q. Now I will ask you this, if in your deposition in the Chattanooga case on page 46 of your cross examination if this question wasn't ask- you, and if you did not answer as follows: How about the items that go to make up the clear water basin? A. The clear water basin was figured in the same manner as the settling basin, the quantities being obtained from plans furnished by the city water company, said to be the plans which were followed during the con-

struction; the masonry was figured at $5.00 per yard, the concrete at $5.00 per yard, the excavation at 30 cents per cubic yard which makes a total of $9564.00" &c. to which ten per cent. has been added, making $10520.00. Is that not true Mr. Wingfield?

A. I suppose it is.

Q. Well take the deposition and say whether it is or not.

3265 A. Well I can not say that that is a true copy, but I suppose it is.

A. I will ask you if the paper I hand you is not marked "filed" in the Chattanooga case?

A. Yes; I am perfectly willing to adopt it; there is nothing in it I wish to dodge at all. The construction is entirely different—the mixtures that I figured on were different on account of the construction, and then in the Chattanooga case there was no item of cement plastering on the inside.

Q. At any rate you have charged in your estimate in this case $12.10 per cubic yard for concrete and brick lining for the storage reservoir, while in the Chattanooga case you estimated the concrete and brick lining at $5.00 per cubic yard, isn't that true?

A. No sir, I have estimated the concrete in this lining at $7.00 a yard and then have added the cost of the lining or plastering on the inside, which goes to make up the total I have shown.

Q. I again put the question to you; doesn't your 47,196 square feet amount to 1167 yards?

A. It does.

Q. And have you not charged for that 1167 yards $14,158.80, or at the rate of $12.10 a yard?

A. I have charged $14,158.80 as the total cost of the linings of the reservoir, this item being made up of the cost of the concrete, and in addition to the concrete, the cost of plastering on the inside. The apparent price of $12.10 per yard is not the cost as I have figured it for the concrete alone, but includes the plastering.

Q. The whole quantity amounts to $12.10 for the entire work, don't it?

A. Yes.

Q. And that is the way you figured it, but by the foot here?

A. No, I figured it by the superficial foot, which is not the cubical contents at all. You might as well say you pay for plaster-

3266 ing a room at so much a cubic yard for plastering.

Q. Now what mixture did you use in your Chattanooga work that you estimated at $5.00 a yard and treated as sufficient for exposure to water?

A. I did not construct that plant on which I estimated at Chattanooga—the clear water basin. My figure as I remember it must have been 1, 2½ and 5, possibly 1, 2 and 4. The proportion that I used in figuring the Knoxville water plant was 1, 2 and 4, using the Rosendale cement. I figured the cost of stone at $1.00 per yard, the price paid in the Chattanooga case being $1.40 per cubic yard. That is one item that makes the difference.

Q. Do you know what mixture was actually used either at Chattanooga or here?

A. I do not.

Q. I see you have another item of puddling sides and bottom 47,196 square feet at 64 cents per foot making an aggregate charge of $1887.04. Will you reduce that to cubic yards and state the price per cubic yard that you have attached to that?

A. The quantity of puddle figured on was 3496 cubic yards, being based on a thickness of two feet.

Q. On sides and bottom?

A. On sides and bottom.

Q. Do you know whether any such puddling was done at all or not?

A. I saw a portion of it being puddled in 1883 when the repairs were being made upon the reservoir; I cannot speak positively as to all of it, but I know it is customary in such construction.

Q. The question is do you know that any such puddling was done on the bottom and sides?

A. I have just answered that.

Q. How do you know that, in seeing the repairs in 1883 you speak about?

A. Yes.

3267 Q. That is the extent to which you know there was any puddling?

A. Yes.

Q. Was there anything to indicate to you that there had been any puddling in the original construction of that reservoir?

A. I didn't examine it closely, and cannot say positively whether there was or not.

Q. Now isn't this a fact, that they had simply laid the brick without puddling against the earth bottom and the earth sides and that the construction of that reservoir was faulty and insufficient, in your opinion?

A. If it had been laid without puddling against the sides and bottom, without sufficient preparation, I would say that it was faulty, but I cannot say that that was the case.

Q. You saw it in 1883 when it was broken?

A. Yes.

Q. Didn't what you see indicate that it had been done that way?

A. No, they were repuddling the portion of it that was stripped.

Q. But I am talking about the other portion of it; do you know whether it had been puddled or not?

A. No I do not; the edges where the brick were put in, were being filled in with puddle.

Q. How large was the orifice of that hole?

A. It is hard for me to state positively on a matter that occurred 20 years ago, but my recollection is that it was something like 30 to 40 feet across the top and sloped down to nothing at some 20 to 25 feet below the surface.

Q. What part of the reservoir was it?

A. It was in, or near one corner. While those repairs were being

made, a considerable portion of the lining was stripped on all sides, and it was that portion I saw them puddling when I made the examination.

Q. They were puddling around where the break had occurred?

A. Yes.

3268 Q. But that was after the original construction?

A. Yes.

Q. Now I see you have an item under the head of "Storage Reservoir" of contingent allowance for bad bottom, $2000.00. You make that allowance in view of what you saw here in 1883 in that break?

A. Yes.

Q. Then I see you have another item for engineering and contingencies of 16% on account of storage reservoir amounting to $3968.26 of which $2480.00 is for contingencies also, isn't it?

A. 10% of the total cost of the reservoir is for contingencies.

Q. Then you have, have you not for contingencies on this storage reservoir an allowance of $4480.00?

A. Yes.

Q. And you have allowed the 16% for engineering and contingencies upon the $2000.00 contingent allowance, have you?

A. Yes.

Q. That is a contingent allowance upon a contingent allowance?

A. Yes; that contingent allowance for bad bottom, as it appears in my statement, should really be changed to cost of replacing bottom. I figured that it was really a part of the construction account, as explained in direct examination.

Q. Will you give the figures upon which you calculate the item of excavation and embankment at 13,000 cubic yards; I mean the measurement that you took for that purpose?

A. The excavation is 106 feet by 187 feet for each reservoir, and the depth is 20 feet, and there is a slope on all four sides of 1½ to 1 ft. which makes the bottom 36x117 feet. I squared the top, I squared the bottom, added the two together and divided it by "2" and multiplied this by "20" and in that way obtained the total of 17,777 yards. I then measured the embankment and calculated that to be 13,000 yards, and therefore took the amount in the embankment as the amount which was actually excavated.

3269 Q. Well now what did you estimate the capacity of the reservoir such as this to be—the one you have stated—I mean both together?

A. 3,600,000 gallons.

Q. If the dimensions you have stated were not the actual dimensions, but the actual dimensions or something less, the capacity would be something less, wouldn't it?

A. Yes.

Q. It would be an easy matter to make a difference of two or three thousand cubic yards in an estimate of that excavation and embankment there, wouldn't it?

A. Yes it would be easy to make some difference, because as in the matter of excavation at the pump house, there is an element of

uncertainty in it as to where the embankment ends and the excavation begins.

Q. Isn't the matter one that is so indefinite and uncertain from the conditions that exist there now, that you as an expert would adopt implicit-y a statement from the companies' books showing the amount of excavation, if the books did so show?

A. No I don't know that I would unless it was brought out in such a way as that there would be absolutely no chance of error in it.

Q. Well wouldn't you prefer to rely on the books of the company to show such facts from elements remaining now?

A. Yes, I would prefer to have the exact amount figured at the time of construction rather than my figures at the present time.

Q. Now assuming Mr. Wingfield that the actual amount of excavation and embankment as shown by the books of the company, and by the contractor's evidence who did the work, was 10,000 yards and that it was done at 12½ cents a yard or $1250.00, how much would that reduce your allowance for excavation and embankment?

A. If $1250.00 included all the items that I have included
3270 in my estimate, that is repairing the bank for the lining, the difference would be $3950.00.

Q. Now placing concrete and brick lining which you have charged here at $14,158.80 at the same figure of $5.00 that you used in the Chattanooga case for the construction of the clear water basin at that place, how much would your item for concrete and brick lining be reduced?

A. I can figure that for you, but I can see no comparison because the two constructions are not alike.

Q. Well just answer my question, and we will argue it later.

A. $2,316.00.

Q. I asked you how much it would be reduced.

A. It would be reduced just that much; I have figured $7.00 for concrete here and $5.00 for concrete in Chattanooga.

Q. You have figured that it is $12.10 a cubic yard on 1167 yards as it appears here. Now in you- Chattanooga case you figured at $5.00 a cubic yard. Now I am asking you what the difference will be if you figure the amount at $5.00 instead of $12.10?

A. In the Chattanooga case——

Q. Just answer my question and make your explanation afterwards.

A. There is no comparison between the two costs, because in the Chattanooga case there is no plastering. There are two elements in the Knoxville lining and only one element in the Chattanooga lining.

COMMISSIONER: Just give him the figures, Mr. Wingfield.

A. However the figures you asked for are $8221.00.

Q. And that would be the difference, figuring at $12.10 the price you adopted here and the $5.00, the price we assume you had in the Chattanooga case?

A. Yes.

3271 Q. Now if nothing was expended for necessary to be expended for preparing hill-side for embankment, that $1000.00 should go out too, shouldn't it?

A. Yes.

Q. And if there was no puddling for the sides and bottoms, that $1887.04 should go out?

A. Yes.

Q. Now don't you think you have made a pretty liberal allowance of $2000.00 for the contingency of a bad bottom?

A. They were working on it as I remember about two months with a large force of men, repairing it.

Q. My question is, don't you think your allowance of $2000.00 a pretty liberal one?

A. I do not.

Q. It is a mere guess, isn't it, not based upon any data or calculation susceptible of being reduced to a calculation?

A. Yes.

Q. Now don't you think that this last item—general item for contingencies—of over $2400.00 would have been sufficient to cover all the contingencies, including this one of a bad bottom?

A. It might have covered them all if the bad bottom had not occur-ed, and might possibly have covered them all as it is.

Q. Well don't you think it has covered them all?

A. No, I do not; that matter of contingency is purely an arbitrary matter, and I couldn't state whether is was consumed or not.

Q. Well you are assuming to make an allowance of contingencies before the fact of bad bottom, or anything else is known, just from an examination of the ground. Don't you think an allowance of $2400.00 or $2500.00 would have been an abundant allowance in advance for all contingencies in the construction of that bad bottom?

A. No, I do not. The item of contingencies will cover the excess excavation, the moving of the embankments, straightening
3272 up, and any and all items of that character which do not appear now from the finished plant.

Q. Suppose you had been called upon to go up there and estimate the cost of that reservoir, how much would you have allowed on contingency for bad bottom before it was constructed?

A. I would have allowed nothing for that special item. I would have allowed the general contingencies just as I have allowed it here, and if that had not actually occur-ed and I had known of it, I would not have added it in.

Q. Now since you don't know of any other contingency except the one of bad bottom for which you allow $2000.00 now after it has occur-ed, isn't that allowance sufficient and isn't that all you ought to have allowed if you are going to take into consideration all that has occur-ed?

A. I don't think it is sufficient, because that item of bad bottom has not occur-ed more than once or twice in the history of the construction, and yet the item of contingency is always added in every case.

Q. But, if you had been estimating in advance, you wouldn't have made an allowance and estimate of $2000.00?
A. I would not.
Q. Well as you are estimating afterwards and as it is all the contingency you know of, shouldn't you be satisfied with the amount that covers that contingency?
A. I should be satisfied if I knew positively that bad bottom was the only item of extra expense which entered into the construction, but it is probable that there were other items of expense not calculated upon, just as there are in all other structures.
Q. Do you know of any other item?
A. I do not.

Q. Then so far as you know this $2000.00 covers all con-
3273 tingencies that actually happened.

A. As far as I know.

Q. Your contingent allowance and engineering for this reservoir amounts to $6000.00 lacking a few dollars, doesn't it?
A. It amounts to $4345.83. The $2000.00 additonal to which you refer I have put in as an actual known expenditure during construction.
Q. It was put in to cover a contingent wasn't it?
A. It was put in to cover construction that actually was made.
Q. You constructed a reservoir while you were at Chattanooga, didn't you?
A. Yes.
Q. What was it known as?
A. The Ridgedale reservoir, or Missionary Ridge reservoir.
Q. What was its capacity?
A. About three million gallons.
Q. Wasn't it three and one half millions precisely?
A. I couldn't tell you exactly for I haven't the date.
Q. What were the dimensions of theat reservoir?
A. I don't remember; it was all in one reservoir and was oblong and was cut into the side of the ridge.
Q. I will ask you to look to page 17 of your deposition in the Chattanooga case and see if you don't there state that the Ridgedale reservoir is approximately 330 feet by 130 feet, and its capacity approximately three and one half million gallons of water.
A. Yes, I stated then that I wasn't certain; I thought that that was about the size and capacity.
Q. That makes it about the size and capacity of the two reservoirs here.

A. As far as the holding capacity is concerned, it would; but the single construction—by that I mean having the one
3274 reservoir instead of two—would reduce very largely the amount of work in puddling and lining.

COMMISSIONER: And it would save two walls?
A. Yes.
Q. Well how much excavation did you get out of that reservoir down there?
A. I don't remember. I would have to refer to that record there

if it is stated therein. It is impossible for me to carry figures like those in my head, because I am figuring on so many things at so many different times.

Q. Wasn't it 9400 yards of excavation and embankment?

A. I don't remember.

Q. Look at page 55 of your deposition and see if 9400 yards isn't the correct amount as there stated by you?

A. Yes; that excavation at Chattanooga was of such a nature owing to the location, that it would be much less for the same capacity of reservoir than would apply on a hill like this.

COMMISSIONER: You treated this hill-top as flat and that was on the side?

A. At Chattanooga we had a little recess on the hill side and made just enough excavation to fix the outside bank.

Q. That reservoir was constructed sufficiently to hold water, wasn't it? and in a proper and workman like manner?

A. Well they had the same kind of an accident there as they had here; a portion of the bottom went out.

Q. Well you got that constructed for about $13000.00, didn't you?

A. I don't remember what the items are shown there.

Q. And in doing so you placed the excavation at 50 cents a yard. I will ask you to examine page 55 of your deposition and see if that is not so?

3275 A. Yes.

Q. What sort of an accident was it you had down there?

A. A portion of the bottom fell through, and we found upon examination that there was a spring branch running under a portion of the reservoir, and the excavation approached that close enough to weaken the bottom to such an extent than when filled with water it gave way.

Q. Well in your estimate in the Chattanooga case as to this reservoir we have just been speaking of, I don't find any allowance for preparing hill-side for embankments; did you forget to put it in?

A. No that was included in the 50 cents a yard; that makes the difference between that and the 40 cents I have figured here.

Q. I don't find any allowance of $2000.00 or any other sum for bad bottom.

A. That must have been an over-sight because I certainly should have put it in as I think it is a proper charge.

Q. Nor for grading and sodding bank, for which you charge $200.00 here?

A. There was nothing of that kind there that I remember.

Q. Do you know that there was anything of the kind done here?

A. The bank is sodded and grassed all over, and I presume it was placed there by the water company at some expense. That item of $200.00 is an arbitrary item, and I would guess that is what it is for.

Q. And you not only omitted the contingent allowance for bad bottom in the Chattanooga case, but you allowed only 10% for engineering and contingencies?

A. I allowed 10% in the Chattanooga case all the way through instead of 16% that I allow here. I have found though that 10% wasn't sufficient.

Q. When did you find that out, Mr. Wingfield?

3276 A. Since the Chattanooga case, in several instances.

Q. You think 10% on pipe for buying it, isn't sufficient?

A. For that one item it would probably be.

Q. How about filters that are placed by the manufacturer?

A. It depends on what price the filters are figured at.

Q. In this Ridgedale reservoir, was there any rock excavation?

A. I think not; no I am certain there wasn't.

Q. Mr. Wingfield, which of you figured the number of pounds in the Lonsdale stand pipe, you or Mr. Ludlow?

A. I did.

Q. Who measured it?

A. I did; not in height; I took the statement of the water company. I don't think there is any dispute as to the size of it.

Q. How long were you and Mr. Ludlow out there making the measurements—I mean at the standpipe?

A. Only a few minutes.

Q. What measurements did you take?

A. Just the size of the foundation.

Q. What did you find that to be?

A. I figured it 5 feet deep. It is about 28 feet in diameter.

Q. That is the only measurement you took?

A. Yes; for the stand pipe itself, I took the statement of the water company as to its size.

Q. Now the chief difference between you and Mr. Nixon and Mr. Brown is first as to the quantity or weight of the metal in this stand pipe, you making it 120,000 pounds and Messrs. Nixon and Brown 105,000 pounds, and secondly, as to the price per pound, you placing it at 05 cents and Messrs. Nixon and Brown at 3.44/100 cents. Now you have figured this stand pipe at $6918.00; that is $518.00 in excess of what the water company claims, isn't it?

A. I don't know what they claim.

Q. Don't you know that Mr. Wheeler and Mr. Kimball

3277 figured it at $6400.00 with 20% added?

A. I do not.

Q. At any rate you figured it at $6918.00?

A. Yes, I made my figures absolutely independent of Mr. Wheeler's, Mr. Kimball's, Mr. Brown's or Mr. Nixon's.

Q. As I understand you have never had anything to do with the Waren filters?

A. I have never installed a plant of Warren filters.

Q. Nor with the Jackson filters?

A. No.

Q. There was a good deal of trouble about those filters at Chattanooga, wasn't there?

A. Yes.

Q. What kind were they?

A. The Jewel and the National.

Q. What is a set of new filter teeth for a 10½ foot Warren filter worth?

A. I could not tell you.

Q. Haven't you any idea what a set of filter teeth are worth?

A. I have never purchased a set for a Warren filter.

Q. They are pretty expensive, ain't they?

A. I don't know what they asked for them. I simply know what they ask for the completed filter in place.

Q. Now the filters in the Chattanooga plant are much more substantial and expensive than the filters here, ain't they?

A. No, I think not. The Chattanooga filters were originally designed for pressure filters and therefore are of a dfferent type.

Q. Well they are iron or steel?

A. Yes.

Q. And these are wood here?

A. Yes.

Q. And that would make them cost more at Chattanooga?

A. Yes.

Q. And these here are open and those at Chattanooga are closed?

3278 A. Yes, sir, and that would also make them more expensive at Chattanooga. The cost of the filters at Chattanooga were largely in excess of any estimate I ever made for an open top filter.

Q. Well, now, Mr. Wingfield, I come to the subject of brick. How did you calculate the number of brick in the different building in which brick were used in the construction of this plant?

A. I took the method that is universally adopted by brick masons and contractors; I measured around the outside of the wall and then multiplyed the contents, when I got them, to cubic feet—by "20," allowing 20 brick to the cubic foot, then deducted one half of the opening in walls that were 12 inches or over, and none at all in a wall of 8 inches—that is the bricklayer's rule.

Q. So you adopted the contractor's method?

A. Yes.

Q. That doesn't ascertain the exact number of brick in a wall, does it?

A. No, but it ascertains the number of brick you pay for if you contract for them by the thousand.

Q. It gets you more brick than——

A. That depends upon the care that has been taken in handling the brick. There are, in a wall actually about 17 or 18 brick per cubic foot, but there is a large percentage of loss in breakage, in hauling and laying the brick, so that the usual estimate is 20 brick per foot per kiln count.

Q. Now, what was your method in the Chattanooga case, the same as this?

A. I don't remember about that,

Q. The other method is known as the engineer's method, isn't it, of computing the actual contents of the wall and 17 brick to the cubic foot?

A. Yes, and when that method is adopted you will have to make the price of the brick to correspond.

3279 Q. What have you allowed for common brick laid in lime mortar in a wall in your estimates in this case?

A. $12.00 in place.

Q. $12.00 in place?

A. Yes.

Q. And for brick laid in cement you have allowed from $15.00 to $20.00 have you not?

A. From $14.00 to $20.00.

Q. And to these figures you have added 16% for engineering and contingences?

A. Yes.

Q. Which would make the cost of common brick laid in mortar in wall; how much adding the 16% to it?

A. $13.92.

Q. That would represent the price at which you assume contractors could be procured to lay brick in Knoxville such as is laid in this plant?

A. No, that charge of engineering would have to go anyway, and the charge of contingencies would go in to meet the matter of extras that you would undoubtedly have when your job wound up. I have never seen a job where they did not exist.

Q. But I referred to the figure you have last given?

A. No, sir, my estimate is that a contractor would take that job at $12.00 and that the engineering of the job would cost 6% of that total, and that the extras and other incidentals not covered by the contractor's price would be 10%.

Q. At what figure have you figured common brick?

A. At $6.50.

Q. How did you get that figure?

A. From Mr. Kimball of the water company.

Q. Did not Mr. Kimball tell you that he had sworn in this case that the brick were figured in their own estimate of construction at $6.00?

A. No.

Q. Well, did he tell you that the great majority of the common brick were bought at $5.50 and even as low as $5.00 and $5.25?

3280 A. No, I simply asked him the question as to what was paid at that time and his reply was I think, $6.50.

Q. And you contented yourself, with Mr. Kimball's statement without further inquiry as to the price of brick and put them at $6.50?

A. Yes, I knew that was about the price usually paid; that is our price at home.

Q. Well, do you know, or did you know, or did he inform you that the prices paid by this company are in proof in this record?

A. No.

Q. At what price did Mr. Kimball tell you the company had paid for vitrified brick?

A. $7.00 in excess of the others.
Q. That would make them $13.50, wouldn't it?
A. Yes.
Q. He did not inform you then that the company had in fact paid only $11.00?
A. No.
Q. And that fact was in proof by the secretary of the brick company?
A. No.
Q. And on his statement you figured vitrified brick in at $13.50?
A. After having ascertained my own price which was much higher than $13.50.
Q. Will you give an analysis of your cost of brick laying in Knoxville—each item that makes it up?
A. That would depend entirely on how the contractor figured it, my estimate being what I believed the contractor would charge for work of that kind, and is based on what I have paid for labor on brick work, and is made up as follows: 1000 brick $6.50, one barrel of lime 75 cents, one yard of sand 50 cents, labor $4.25. That item of labor includes scaffolding and necessary tools. Now in
3281 making the prices for brick laid in cement, the only difference is the difference in cost of the cement and lime and the difference in labor in laying the brick in cement.
Q. Well, will you please separate the $4.25 item into its elements?
A. No, I don't think I could beyond saying that I have constructed work to the amount of many hundreds of thousands of brick, and the average or cost price is about $4.00 to $4.50 per thousand brick measured in the wall. I have never made or kept a memoranda showing how much was paid for the brick-mason, how much for the mortar mixture or hod carrier.
Q. Now, Mr. Wingfield, have you not been informed by Mr. Kimball or any one that in the highest times contractors have never charged as much or certainly not more than $10.00 and have charged as low as $6.00 for laying brick in lime mortar in Knoxville?
A. No, I don't think I have heard that, and do not think I would like to have work done that cheap, as it is likely to fall down.
Q. Mr. Wingfield, I find the last item on page 9 of your estimate tools, teams and stock $12221.87. How do you get that item?
A. I took it from the estimate furnished by the water company I had no way of knowing what they had on hands at that date and it would have been foolish for me to have guessed at it as against a statement of the water company that they had that amount of tools, teams, and stock on hand.
Q. Who told you they had that much?
A. From the books here and Mr. Kimball.
Q. Did you examine the books to see what it consisted of?
A. No.
Q. And don't you know that is the accumulation of old materials very largely during the 20 years' existence of this plant?
A. No, I had no means of ascertaining what it was 2 years ago.

3282 Q. Then you know nothing at all about that item?
A. Nothing at all.
Q. Now, do you think an item of that sort has any place in an estimate of the cost and replacement of a plant such as to put in the old stock on hands at the date of replacement?
A. It is always customary for every water company to keep on hands material with which to make repairs, that is all kinds of tools that will be necessary, and stock of different kinds. That is a part of the stock in trade, and is necessary to make repairs quickly in case of accident.
Q. Well, a reasonable amount on that account would be proper in a replacement estimate?
A. Yes.
Q. But that wouldn't be actually the amount now that the company had on hands after 20 years?
A. Not necessarily; but the company itself can come nearer telling you what they have than anybody else.
Q. This item is what you were informed by the officers of the company was on hand at that time?
A. Yes.
Q. Mr. Wingfield, I see in your estimate you include 266 hydrants set and connected at $30.00 making an aggregate of $7960.00. Now if there were only 247 hydrants in use at that time, how much should this estimate of yours be reduced?
A. $570.00.
Q. What do you know about the size of the hydrants in use at Knoxville and how many of each size?
A. Nothing except what the records of the water company show. It is impossible to get at the sizes in any other way unless you dig them up.
Q. Did you go to the books of the water company?
A. A statement was furnished me by Mr. Kimball.
3283 Q. What was that statement?
A. That there were 266 hydrants set and connected.
Q. He did not tell you that there were 15 or 16 of them standing out in an old field and not in use, did he?
A. No sir.
Q. Did he give you the sizes or the make?
A. Yes, he gave me a slip showing the sizes and makes and from that I made an average and put them all in at the same price.
Q. Well what were the sizes; have you that slip?
A. I have not the slip with me.
Q. I belive you may furnish that list—get that slip and furnish a list of the hydrants; the size, make and where located.
A. I will.
Q. Mr. Wingfield, what is the population of the city of Augusta, where you live, by the last census?
A. Thirty nine thousand.
Q. Your water plant there is a first class one isn't it?
A. Sp-endid.
Q. I believe you state its cost at $450,000.00?

A. No, the part I built there cost that much; the total up to date is more than a million dollars. It has 56 miles of pipe in the streets besides what I put in.

Q. You have large pipe on your principal streets, haven't you?

A. Yes.

Q. What size?

A. 20 inch.

Q. Well Mr. Wingfield, the number of nozzles and the size of connections of a hydrant make considerable difference in price or cost, do they not?

A. Yes, they make some. The greatest differences is made
3284 by the size of the valve inside the hydrant.

The further taking of this deposition was adjourned until Wednesday morning, January 13th 1904 at 9 o'clock a. m.

WEDNESDAY MORNING, *January 13th*, 1904—9 o'clock a. m.

Continuation of cross-examination of NISBET WINGFIELD by G. W. PICKLE:

Q. Mr. Wingfield, on yesterday I asked you to state how much your estimate of $618,000.00 would be reduced by the fact which I assumed for the purposes of the question, to be a fact that all of the service pipes except 423 which enter into your estimate had been placed at the expense of the water consumers and were not under brick or macadam pavement but under ordinary streets. You stated in reply to the question that the reduction would be $35,330.00 I believe. Now I will ask you if there should not be deducted also the 16% which you calculated upon that $35,330.00 and which likewise enters into your estimate of $618,000.00 which is $6652.80, making in all the deductions upon my hypothesis for this account $41,982.80?

A. If the $35,000.00 for service pipes is deducted for any cause, then the 16% should also be deducted, and the total deduction as you state would be $41,982.80.

Q. Was this statement of yours submitted to Mr. William Wheeler and Mr. Kimball before you were examined in this case, shown to them?

A. I filed it with Mr. Kimball, or rather I mailed it to him from Augusta.

Q. Was it suggested to you by either of them, that there was any mistake in regard to the matter of services?

A. No.

Q. Did Mr. Wheeler see it before he left here, the statement you made up before you left; didn't Mr. Wheeler see that and ex-
3285 amine it?

A. I don't know; I never showed it to him.

Q. Now Mr. Wingfield, you state that you calculated brick not according to the engineer's method bit according to the contractor's method?

A. Yes.

Q. And as compared with the calculations made by Messrs. Brown

and Nixon according to the engineer's method of "17" brick to each cubic foot of solid contents of the wall, your estimate of the amount of brick would be greater by three brick to the cubic foot and to the extent of one half of the openings in the wall, wouldn't it?

A. Yes.

Q. And your price of $12.00 a thousand, if placed upon their basis as to quantity, would be much greater, wouldn't it?

A. It would be greater in the same proportion; in the proportion as "17" is to "20."

Q. And also as to the amount of openings too, wouldn't it?

A. Yes.

Q. Your prices of brick work you say are the prices at which contractors would do it without the 16% added?

A. Yes.

Q. So that the 16% that goes on is for the benefit of the owner or water company?

A. The 16% is intended to pay extra cost to the water company above contractor's price and engineering, and any extras or any other items not stipulated in the contract.

Q. Suppose that the owner, in this case the water company, simply lets the building under proper direction of an architect or engineer to be a turn-key job. Where do the contingencies come in?

A. The probabilities are that the contractor would add in
3286 for the contingencies himself, and the architect would certainly have to be remunerated.

Q. Well then the contingencies ought to go to the contractors and not to the owner?

A. They ought to go to the contractor if the contractor undertakes to assume all responsibility by agreeing to make a turn-key job. If however he does the work by piece-meal, as I have figured it, then the water company assumes the responsibility and should have the benefit of the per centage.

Q. Now in the Chattanooga case you fixed brick at the same prices as you have in Knoxville with 10% for engineering and contingencies instead of 16% as here did not you?

A. Yes.

Q. I asked you on yesterday to give an analysis of your cost of brick laying per thousand and you didn't get down to what I conceived to be an analysis. Did you in fact make an analysis based upon Knoxville Prices of material and labor at the time of making up this statement?

A. I did not; I merely took my experience in other places as to the cost of that kind of construction.

Q. You spoke of there being a yard of sand to the thousand?

A. Yes.

Q. Isn't that excessive?

A. No that has been my experience; I have laid hundreds of thousands of bricks and have furnished the brick and all *am*terial and know pretty close whart goes in, and it will average very close to a yard of sand per thousand brick. Of course there is some waste.

Q. Well now will you tell me just how much of this $12.00 for

laying common brick in lime in a wall, how much for the brick mason, how much for his helper, and how much for other labor?

3287 A. I couldn't give you that without assuming what the helper would be paid, the brick layer and others. Those items are usually figured on in a lump under the head of "labor" where the owner furnishes the material and lets the contract for the laying. He does not make an additional contract for each item of labor but merely names the total which includes brick-layer, helper, mortar-maker, &c.

Q. Now Mr. Wingfield, if in point of fact the contractor's price for laying lime brick in wall was only about $8.00 on the 31st of March, 1901, and for years prior to that in the city of Knoxville, then your estimate of these brick is too high, isn't it?

A. If the brick can be laid for $8.00, that is of the character of work they have in the pump house, then my estimate would be too high.

Q. Well I am asking about work laid in lime mortar in walls that you put at $12.00?

A. There is a good deal of difference in different jobs of brick laid in lime mortar, some of them are rough and badly laid and some of them are good.

Q. Say that $8.00 had been a full price for the best work done on the best building in Knoxville, wouldn't you consider that a fair price for this work?

A. Yes if that is the price for work on buildings of that character.

Q. And I speak of the $8.00 price without any 16% added too?

A. Yes.

Q. Well now your other estimates as to laying other sorts of brick are in due proportion, so far as price is concerned, to the laying of brick in lime mortar and based upon that as a basis, isn't it?

A. Yes.

3288 Q. Now Mr. Wingfield, I find an item here that I don't quite understand, under the head of River station—concrete floors in pump station 402 square yards at $1.44. How thick was that concrete that you are estimating there?

A. About 4 inches I assume.

Q. Well have you any memoranda by which you can ascertain certainly whether it was 4 inches or not?

A. No, it was floor and I did not dig a hole in it to see how thick it was.

Q. Well will you reduce that to cubic yards and tell me what it is for the cubic yard?

A. Well I will reduce that and any other item you want, but it is like comparing brick and timber—the constructions are entirely different. It is 44 2/3 yards.

Q. Cubic yards?

A. Yes.

Q. Well now what would the price at which you place it, $578.88 put it at per cubic yard?

A. $12.96.

Q. $12.96 per cubic yard for that concrete floor?
A. Yes.
Q. Where is this floor situated you have estimated here?
A. It is in the engine room of the new pit. There are two floors, one at the bottom of the pit and one about 10 feet down from the top.
Q. The engine room and boiler room are the same thing practically, are they not?
A. No, the boiler room is a different building.
Q. Well a concrete floor in one would be about the same as a concrete floor in the other?
A. Well it depends upon the construction.
Q. Well one would be sufficient in the other?
A. I should think so. I couldn't tell you what the difference in value would be without knowing the different constructions.
3289
Q. Now Mr. Wingfield you have placed this concrete floor in the pump station at Knoxville at $12.96 per yard. On page 30 of your deposition in the Chattanooga case, cross-examination under the general head of "old station" I find this item; concrete in floor and boiler room 142 yards at $5.00 per yard $710.00. I will ask you *fi* that is not the estimate you placed per cubic yard upon that sort of work and on that particular work in the Chattanooga case?
A. No the two constructions are not alike at all. In the Chattanooga case the concrete was about 2 feet thick down in front of the boilers and did not have a finished surface, called wearing surface as it has in this case. The construction at the Knoxvi*ell* Water Company on which I have figured is exactly similar to cement walks—side-walks—having about 1 inch of cement which is nearly neat, and by that I mean nearly pure cement. The universal price of that kind of work is approximately 16 cents per square foot, or $1.44 per square yard and that is the way I figured it. In the Chattanooga case the concrete was in bulk and was merely masonry and not a finished surface. Therefore the two do not compare.
Q. Well in the Chattanooga case you used stone at $1.40, didn't you?
A. I think about $1.40.
Q. The stone used here cost less than one half, didn't it?
A. I figured the stone here at $1.00.
Q. Don't you know it could be got here at for 65 cents and 70 cents and less?
A. No sir, I do not.
Q. At any rate, you put your concrete floor here upon which you estimate at over $12.00, while at Chattanooga, where you paid considerably more for at least the stone material, you placed concrete flooring at $5.00 in your Chattanooga estimate?
3290
A. They are facts as far as the estimate shows, but it is not a fact that the two items are at all similar.
Q. Was any of the concrete in the Chattanooga plant similar to that which you have estimated in this plant.
A. Yes.

Q. Well what not?
A. The foundation.
Q. Of what?
A. Of buildings, and under the boilers. I think in various places in the Chattanooga case there was an estimate of $5.00 the same that I have estimated similar work in the Knoxville case.
Q. Did you have any concrete in the pump station at Chattanooga?
A. Yes.
Q. Similar to that in the pump station here?
A. In the Chattanooga pump station, all of the concrete was of Louisville cement, the cost of which was less than 90 cents per barrel; in the Knoxville station a good deal of the concrete is of Portland cement, which costs three times that of the Louisville cement.
Q. Well they use- Louisville here on the pump station also didn't they?
A. In some cases I have understood they used Rosendale cement and in this item I have placed the concrete at $5.00 a yard.
Q. You did a good deal of that construction at Chattanooga, didn't you?
A. Yes.
Q. It was good and sufficient work wasn't it?
A. For the purposes it was intended, it was sufficient.
Q. You added onto your Chattanooga prices of cement 10% and onto your Knoxville prices you added 16% for engineering and contingencies, didn't you?
A. Yes.
3291 Q. What have you estimated in this case the concrete under the filters at?
A. I made no estimate for that at all, that having been included in my price on the filters set up.
Q. Well at what price did you put it and include it in the price of the filters; have you a memoranda there to show?
A. No, the price of the filters I took from my general experience over the country per million gallons of the cost of installing a filter plant similar to the one in Knoxville.
Q. What I want to know is, what did you, if you considered the matter of concrete at all for the filters, what did you put it at per cubic yard, or did you consider that matter, except in a lumping way?
A. No, not except in a lumping way as you say, though if I had considered it, and it had been Rosendale cement, I probably would have put at $5.00 the same as I estimated the foundation for the standpipe.
Q. But you did not consider it at all, but put it in as a lumping item?
A. Yes.
Q. Did you have any concrete in the settling basin or walls in your Chattanooga case?
A. Yes.
Q. What did you put it in at per cubic yard?
A. $5.00.

Q. In this case you have put it in at $8.50 per cubic yard?
A. Yes.
Q. In the Chattanooga case you added 10% for engineering and contingencies on like items and in this case 16% for like purposes?
A. Yes the concrete in the Chattanooga basin is made of Louisville cement; that in the Knoxville basin is made of Portland cement; the difference in cement makes the difference in price
3292 with the exception that in the Knoxville case the cost of putting it in place was probably more on account of its being built above the ground and forms having to be made to hold it.
Q. Did you put that in, in Chattanooga?
A. No.
Q. Well in making settling basins, you have built some, what cement have you ordinarily used as sufficient for the purpose?
A. I have used all kinds, and my decision depends on first the condition at the various places and second the cost of the different cements at the time of construction.
Q. Haven't you generally and almost uniformly used the cheaper cement and not the Portland for this sort of work?
A. Up to eight years ago, the usual construction in this part of the country was Louisville or Rosendale cement on account of the high price of Portland. Since that time the prices of Portland have decreased sufficiently to enable its use without an extraordinary expense, and it is conceded by all engineers that the Portland construction is better and stronger than the Louisville or Rosendale construction?
Q. Still the other construction is good and sufficient, and has proved so in your experience?
A. Yes, for the purposes for which they were used they were all right.
Q. Now going back a moment to storage reservoir and that 1167 cubic yards of concrete which enters into that estimate of $14,158.80, an average of $12.10 per yard for the whole—now you spoke of some circumstance that made this concrete so high. What was that?
A. It was the plastering, if you might call it that, on top of the surface.
Q. How thick was it?
A. About one inch, I think.
Q. What did you estimate it at per cubic yard?
A. I made no estimate of it per cubic yard. I estimated it
3293 in the way such things are always paid for, and that is by the square yard or square foot.
Q. So that you must have estimated that something like the price of gold foil to raise that other common stuff to $12.10?
A. My estimate on that was $7.00 per yard for concrete in place outside of the plastering. The plastering I put at 12 cents a square foot. Those two items together make up my estimate of 30 cents a foot, after reducing the concrete to the square foot.
Q. Well now I would like to get your analysis; did you make an analysis of this particular item at the time?
A. Yes.
Q. Well have you got it there?

A. No, but I can explain how I got it.

Q. Again I ask you, did you make a complete analysis, going down into the details of this item—of each item of cost at the time you made up this statement?

A. Yes.

Q. Well now let me see; what did you put concrete at?

A. $7.00.

Q. Well I mean per barrel?

A. I got at it this way. I figured $5.00 per yard for the concrete in the foundation work, I added $2.00 per yard for the extra cost of placing a thin layer of concrete on a sloping bank that being my experience in different costs in constructions of that character and constructions similar to that on which I have estimated $5.00.

Q. Well I don't want to go into those generalities any more. I want to know the elements that make up the cost of a yard at $12.10; give me the cost of cement, the cost of rock, the cost of labor and the other materials that went into it?

A. I figured the rock at $1.00 per yard, the cement $4.00 per cubic yard, sand 50 cents and labor $2.00. This applies to
3294 that portion of the lining, back of the surface. On the surface I figured the 12 cents per square foot, which approximates $24.00 per cubic yard. These two items make up the 30 cents. In making my estimate however, I have been governed largely by the cost of similar work in other places, without going into an analysis.

Q. How many cubic yards are there of the $24.00 stuff?

A. It is very uncertain how many cubic yards there are in the lining surface, that depending entirely on the thickness. At my price of 12 cents per foot, making a cost of $24.00 per yard it would seem to figure 236 yards, which would make the lining there one inch thick.

Q. But you have stated that you placed it in your estimate at one inch thick and my question is not how much it will figure upon the price but how much it will figure an inch thick upon that surface?

A. I have put in the price of $5663.52; that is 12 cents per square foot. I have not figured it any other way.

Q. Well will you or not figure it and give me the number of cubic yards that there are over that surface?

A. Assuming that it is one inch thick, approximately 146 yards.

Q. That would leave 1021 yards of the $7.00, wouldn't it, deducting the amount for the coating?

A. Yes.

Q. And that 1021 yards without the 16% would amount to $7047.00 wouldn't it at $7.00 per cubic yard?

A. $7147.00.

Q. Well $7147.00?

A. Yes.

Q. Now the whole estimate on this account is $14,158.80 without the 16% added; deducting the $7147.00 for the $7.00 material leaves $7011.00 that goes to the coating, or 146 yards, doesn't it?

A. Yes, if you divide it that way.

Q. Well divide that by 143 yards and see how much it is for the coating you have put on there?

3295 A. $48.00.

Q. Now put the 16% on $48.00 per cubic yard and see how much it would be?

A. $55.88.

Q. So that in effect puts that coating into your estimate of $618,000 at that figure per yard?

A. It puts it in your estimate, because that is your method of figuring it and not mine.

Q. Well how much concrete, and what was it worth that enters into a yard of that coating?

A. To mix the plastering half and half, that is one half cement and one half sand, it would require nine barrels of cement.

Q. For that outside coating?

A. Yes.

Q. What did you estimate at, and what kind?

A. At $2.25; that is what I used in the other construction.

Q. Well now how much would it be per yard for cement?

A. $2.25.

Q. And how much for sand?

A. About $1.00.

Q. Well now how much labor would it take to mix it and put it on, how much labor, and what would you allow for that?

A. I did not figure it by the yard at all. You understand that this is your method of getting at it and not mine, as I do not consider this the way to get at it at all; but about $5.40.

Q. Well now how much does the cement, sand, and labor amount to per cubic yard?

A. $26.55, that is figuring it that way.

Q. Now what did you state yesterday was the measurement of the Lonsdale Beaumont stand pipe that you made—or the foundation from which you made your calculations?

A. I think the measurement as I remember it, was 27 or 28 feet at the top and 6 feet deep; the 6 feet depth was an assumed

3296 depth, there only being about 4 feet visible.

Q. Well where are your figures or memoranda that you made at the time?

A. I haven't it with me now, but my estimate shows the number of cubic yards which I took from my memoranda.

Q. Didn't you state on yesterday that it was 5 feet for the foundation?

A. If I did it was from memory. I am inclined to think it is 6 feet.

Q. Well are you sure now you have got it right?

A. No sir, I am not, as I stated that I did not dig down to ascertain, but had assumed the depth based on what the usual depth is in such practice.

Q. Well are you sure you figured on 6 feet?

A. No I am not sure.

Q. Well can you be sure as to the circumference you figured on so as to give us the data. I will ask you to look at your memoranda?

A. I haven't the memoranda at all and can only state that the number of cubic yards I show here was for the foundation actually measured across and the assumed depth for a stand pipe the size of that one. It is certainly a minimum foundation that I figured on.

Q. Give me exactly what you did figure on?

A. I cannot do that.

Q. Can you give the circumference?

A. As I told you a few moments ago, I am speaking now from memory, and all that I am positive about is the number of cubic yards, which I show here in my deposition was figured from data taken as to the circumference and an assumed depth.

Q. Well where is the data upon which you figured and the calculations you made?

3297 A. I cannot place my hands on it, because the item is so insignificant that I had no idea that the quantities would be disputed. There cannot possibly be any dispute in quantity more than a few yards.

Q. Now you stated on your cross examination on yesterday that you personally took the measurement of the foundation of the Lonsdale Beaumont stand pipe, and that you found it to be about 28 feet in diameter and figured on 5 feet in depth for the foundation. Now will you please — those dimensions and state how many cubic yards is contained in a cylinder of the contents you have named, to wit 28 feet in diameter and 5 feet deep?

A. 114 yards.

Q. You have charged this item at 180 yards, which at $5.00 a yard makes $900.00. Now if your present calculation of 114 yards based upon your statement of dimensions on yesterday is correct, to what extent is this amount of $900.00 excessive without, and to what extent with the 16% added?

A. $382.80.

Q. I want you to state it both ways.

A. That is the amount with the percentage added.

Q. And without it added, what would it be?

A. $330.00; the calculation of 114 yards is entirely guess work as I have stated in my former answer. The 180 yards is the amount that I figured as the correct amount at the time the figures were made.

Q. Well now if you put 180 yards into that foundation, what would be its depth; you stated *in* yesterday you estimated 5 feet. That only makes 114 yards. Now computing 180 yards into that foundation, what would be its depth?

A. If you extend it 28 feet straight down, the depth would have to be approximately 8 feet. It is not a fact however that the walls of the foundation are perpendicular. They batter on the outside and the bottom is very much larger in circumference than the top so that the method here of figuring 28 feet by 5 feet does not conform to the facts.

3298 Q. Well about how much ought that batter to be?
A. It ought to be about 6 inches to the foot on each side.
Q. Is it in fact that way out there; is there any batter there?
A. I think there is.
Q. Did you examine to see?
A. I did not have it dug out to examine.
Q. It is admitted here that the actual diameter of that standpipe is 25 feet?
A. That is what I figured on, 25 feet.
Q. And 28 feet for foundations—circumference?
A. To the best of my recollection is was 28 feet, but I doubt very much if 28 feet is the actual width across; it is probably 30 feet at the top.
Q. Well, as you seem to be so uncertain about this stand-pipe and not having preserved your data, I will ask you to go back and measure it, and ascertain just what the foundation is?
A. I have already stated that every statement I made yesterday or to-day was based on recollection, and I am not positive at all about anything except that the 180 yards were figured from the memoranda I took at the time the estimates were made up.
Q. Now I see that you have, under the head of stand-pipe on Reservoir Hill, 139 cubic yards at $5.00 making $695.00. What were the dimensions upon which you figured the dimensions of that stand-pipe?
A. I find that I hav-n't the data from which that was made up either.
Q. Who took the measurements and what measurements were taken for the calculations in regard to this stand-pipe?
A. We measured the circumference of the foundation, and then assumed a depth, I believe, of 5 feet—I am not certain about that as there was no way to ascertain the depth at which those
3299 foundations go below the surface except by digging them up, so that in each instance I have taken about what is the usual practice in such cases.
Q. And that is about 5 feet?
A. From 5 to 6 feet.
Q. What was the circumference as ascertained by you?
A. I don't remember that; I remember the foundation figured 139 yards.
Q. And 5 feet in depth; was that what you figured it at?
A. I don't remember exactly what the figures were. If it was 5 feet in depth that would have made the diameter about 30 feet.
Q. Well can't you give any of the data upon which you figured the foundation or other things about this stand-pipe?
A. No, I haven't them with me and I cannot say except from memory.
Q. Now then you haven't any memoranda and not even any recollection of the diameter or even definitely of the thickness of the foundation upon which you figured this stand-pipe, have you?
A. No.
Q. How long since you took that measurement Mr. Wingfield?

A. It was made in December.
Q. You took it you say with a view of making these calculation-?
A. Yes.
Q. And expected to be examined on it?
A. Yes.
Q. And you haven't now neither memory or memoranda from which you can state the facts?
A. I went on the supposition that neither the Court nor Attorn*ies* would care to go into the details of such a small item that does not affect in any way the value of the plant.
Q. Well you knew there was a difference between your calculations of this foundation of the difference between 139 yards
3300 as calculated by you and 90 yards as calculated by Messrs. Nixon and Brown.
A. No, I never compared it.
Q. Did not you examine the statement of Messrs. Nixon and Brown in making up your statement?
A. I did not.
Q. Have you seen it?
A. Yes, I saw it but I did not compare them.
Q. But you had read it?
A. I doubt whether I had seen that special item. I looked over it in a general way and noticed the general quantities.
Q. Mr. Wingfield, on yesterday you gave the measurement of your excavations at the pump station—River station—I wish you would turn to that and give them to me again this morning so that I can ask you some additional questions—I mean the measurement upon which you figured earth and rock excavations at the pump station.
A. The measurements were figured in this way; east of the station 75 x 30 x 9 feet which makes 750 yards, all earth; west of the station 50 x 50 x 15 feet which I assumed to be one-third rock and two-thirds earth; behind the station 100 x 20 x 15 feet which I assumed to be one-fourth earth and three-fourths rock, Those three measurement- make the total of 1296 yards of rock and 1954 yards of earth put in my statement as excavation around station.
Q. Well what other measurement did you make?
A. Worthington pump pit I took at 30 feet in depth. One end I figured 25 x 20 feet as the square and the other 25 x 39 feet and this by 30 feet in length would make 680 yards of rock.
The Deane engine room I figured at 60 x 50 x 15 feet which made 833 yards of earth; the screen well, a surface area of about 56 5/10 by 15 feet in depth, making 31 yards of rock, and 6 feet depth of earth, which makes 13 yards—the total excavation being 21 feet deep. The rock in the Deane engine room, 25 x 13 feet on one end and 25 x 3 feet deep on the other end, about 25 feet in depth,
3301 averaging those two and multiplying by 25 feet gives 370 yards of rock. In the boiler room rock excavation 56 x 11 x 5 feet making 114 yards. For the coal chute I assumed excavation of 50 yards as there was no way of measuring it accurately.

Q. Now these measurements, so far as they were above the top of the pit, — taken upon arbitrary assumptions, were they not?

A. Necessarily so; it was just a matter of judgement as to what had been taken out.

Q. And assumptions as to what ought to have been done rather than to any knowledge of what was done actually?

A. Yes.

Q. Now Mr. Wingfield, can you tell the number of thousand of common brick laid in lime mortar which you estimate in this plant at $12.00 per thousand, estimated on the basis of contractor's method of calculation. I wish you would make up that statement?

A. 344,490 common brick.

Q. Now figuring them at $8.00 instead of $12.00 per thousand, what would be the amount to be deducted from your estimate, figuring it both with and without the 16% for contingencies and engineering?

A. The difference in cost between the $12.00 and $8.00 for brick laid in lime mortar would amount to $1377.96 without the 16% contingencies; with that added the difference would be $1598.44.

Q. Now as regards brick laid in cement at various prices, I believe we can get at this matter by simply taking your $12.00 price for brick and lime as a basis, and you add on certain amount, do you not, for other qualities?

A. Yes, that is the way I arrived at it. I just put it at what it would cost additionally to lay brick in cement.

Q. Well now instead of taking the $12.00 basis for laying brick in lime mortar, take an $8.00 basis and calculate it upon that
3302 basis what you estimate for brick laid in cement, would exceed an estimate upon the basis of $8.00 per thousand for brick laid in lime mortar. Give it both with and without the 16% added?

A. Without the 16% the amount would be $2425.78; with the 16% added $2813.90.

Q. Now does this include the vitrified and enameled brick as well as the common brick laid in cement?

A. Yes, my method of getting at that was to make the calculation for the total number of brick and then merely add the differerence in cost between the common and vitrified brick.

Q. Mr. Wingfield, in estimating the cost of buildings, at what price or prices did you figure lumber?

A. At about $26.00 I think. Many *fo* the small details, where there were only a few dollars involved, I assumed a price based on what it would cost at other places.

Q. I see an item of doors, windows and frames $426.50 which makes up that item. What did you figure those things, or did you make an analysis of it at all?

A. The way I got at that was to take a memoranda made by Mr. Kimball, I think for Mr. Wheeler and I checked over each item on the ground. I found the windows, doors &c. to be just as it was stated.

Q. Who fixed the prices and at what?

A. I just lumped them in at about what such things should cost
Q. You didn't take them up individually and price each item?
A. No; the amount was so small that it couldn't have made very much difference one way or the other.
Q. I find an item of window and door sills $207.00. How did you get at that; the same way?
A. Yes I counted them on the ground.
Q. What kind of sills were they?
A. They were marble.
Q. What did you fix the price at?
3303 A. About $1.00 a cubic foot.
Q. Well what would that be for the ordinary size window sill such as you found over there?
A. Something like $3.00.
Q. Do you remember how many there were of those window and door sills?
A. There was one for each window and door. I checked 28 windows and 9 doors. Those are of different sizes.
Q. Well did you price them individually or just put them in a lump?
A. I just put them in lump, I think at about the same price that Mr. Wheeler had put on them which seemed to me about the fair and usual price.
Q. I find for floors and roofs an item of $1734.00. How did you get at that Mr. Wingfield?
A. I checked the memoranda.
Q. What memoranda?
A. Of Mr. Wheeler's just as I did in all of those minor items—I didn't do anything except to check it off and to see that it was all there, and based my price on the quantity, and in the instances where his price seemed to be about right, I let it go just as it was.
Q. Well how did you estimate floors and roofs; how much flooring in this instance?
A. I estimated about 28,000 feet board measure of lumber in the roofs, rafters &c. and 4700 feet of flooring.
Q. At what prices?
A. At $28.00 for the roof work and $30.00 for the flooring.
Q. Well how did you get at the hardware and nails?
A. I just lumped it.
Q. Were you furnished a memoranda of that by Mr. Kimball?
A. Yes; that item is something that it is impossible for any one to check; the nails have been used and it is merely a guess.
3304 Q. Did the memoranda that was furnished you by Mr. Kimball or Mr. Wheeler show the amount of $340.00?
A. Yes.
Q. Painting and oiling $212.50. Were you furnished an item of that?
A. Yes, I took that the same way.
Q. Slate roofing $654.00?
A. I figured the roof. I had that too, but I checked the roof and put it at $7.50.

Q. What was it on the memoranda handed you?
A. $7.50.
Q. Guttering and flashing $165.00?
A. I didn't change that at all.
Q. And you didn't change the item of doors, windows and frames $426.50?
A. No.
Q. Or window and door sills, $207.00?
A. No, all of those seemed to be a fair price, and the items were so small that I let them go in the way they were.
Q. How about stairs and railings $695.00?
A. The same way.
Q. How about railing around pit $195.80?
A. The same way.
Q. Lavitory, $200.00 less $85.00, leaving $115.00?
A. That we figured by measuring.
Q. How was it on the list that was furnished you?
A. It was $200.00 without any deduction. That was merely a memorandum that I put in there to deduct $85.00 from the $200.00 as I thought the $200.00 too high.
Q. Plumbing, heating and lighting $300.00; was that on the memoranda at that figure?
A. Yes.
Q. Felt roofing on tool house $17.50?
A. Yes.
Q. On the memoranda?
A. The same way.
Q. Macadam $35.00?
A. The same way.
3305 Q. Sodding $65.00; that was the same way?
A. The same way.
Q. Fencing Craig Street lots $175.00?
A. The same way.
Q. Drainage Front Street stairs &c. $134.00?
A. The same way.
Q. Then you and Mr. Ludlow *was* furnished a memoranda of the foregoing dozen or so items last mentioned with the claim of the water company as to the amount they wanted for them and in every instance except as to the lavatory you allowed the amounts on the memoranda, didn't you?
A. The amounts were furnished by the water company to us merely as a memoranda of what existed. In making up our schedule of prices on those small items we merely checked the physical property on the ground and also checked the price from a general knowledge of the cost of such things and where it was found to be in our opinion correct, we left it just as it was.
Q. Where did you get the price of $28.00 and $30.00 a thousand for lumber that you have used in this estimate?
A. That was on Mr. Wheeler's estimate and it is also what I have figured in most other places, I think.
Q. You mean it was on the memoranda furnished you?

A. Yes all these items were figured out in that way. We merely checked them all to see that they were there.

Q. And you changed the price only in the one instance of the lavatory?

A. That is all.

Q. Mr. Wingfield, I notice that you have figured 20 inch gates, 9 of them at $125.00 each, aggregating $1125.00 for gates of this size. What did you figure gates into the Chattanooga plant at of this size?

A. $112.00.

Q. You have figured 16% for engineering and contingencies on the $125.00 price at Knoxville, and only 10% for engineer-
3306 ing and contingencies on the price of $112.00 at Chattanooga?

A. Yes.

Q. You have figured one 18 inch gate into the Knoxville plant at $100.00 what did you figure the same size gate in the Chattanooga plant at?

A. It ought to have been $85.00 or $86.00. There was just that much difference in the prices between these two dates.

Q. Well you figured sixteen 16 inch gates at $75.00 apiece in the Knoxville plant making $1200.00. What at the same rate of reduction would they have been figured in the Chattanooga plant?

A. Well at the same rate it ought to be at about $65.00 I should say.

Q. Well you figured fourteen 14 inch gates in the Knoxville plant at $60.00 each making $840.00. What at the same rate of reduction would they have been figured in the Chattanooga plant at?

A. About 10% less. There was 10% difference in the cost of valves at the time the Chattanooga investigation was made and the Knoxville investigation.

Q. Well since you have put that in at that point, at what date did you fix the Chattanooga prices?

A. I do not remember the exact date of the investigation.

Q. Well what year was it?

A. I think it was in 1899—the date that was set for the hearing.

Q. What year?

A. 1900 was the date the evidence was taken but I don't remember now just what date it was figured on. Both of these prices, that is the prices I have got here and the prices there were the then ruling prices.

Q. How did you get the prices at Chattanooga?

A. I asked for estimates from the Ludlow Manufacturing Company.

Q. How did you get the prices here?

A. I got them the same way—from the Ludlow people.

Q. Well I see in the Chattanooga case you figured thirty
3307 one 12 inch gates at $41.00 each making $1271.00. What did you figure gates of like size into the Chattanooga plant at?

A. $38.00.

Q. Haven't you got them at $33.00?

A. $165.00 for five that would be $33.00 apiece.

Q. Isn't it a fact that you put the 12 inch valves in at $33.00 at Chattanooga?

A. I don't remember. The record seems to show $38.00 as the price and the amount carried out indicates $33.00. I am not certain as to which is correct.

Q. What make of valves are you figuring on in the Chattanooga case and what make are you figuring on in this case, the same or different?

A. The same. The price of any one of three or four leading valves is about the same.

Q. Now I will ask you further about the same ratio of difference between your estimate of valves and stop-cocks existing on the other numbers as are indicated by the ones already inquired about?

A. Yes the price of valves at Knoxville includes the cost of box in each case which is $3.00 at Chattanooga—it did not include them as the valves mentioned were in or near the pumping station. There is still a difference in price.

Q. How much does the box cost?

A. $3.00 is the standard price.

Q. *Ar-n't* some of those you estimate here have boxes?

A. All in Knoxville.

Q. But in the Chattanooga case——

A. Not in those of Chattanooga.

Q. Are there any in your Chattanooga case at any different price from that?

A. I don't remember but I think that the price of the box
3308 would be added.

Q. I will ask you to find them?

A. T-ey are not in this record at all; you cannot find a list of the valves in the Chattanooga case. That is included in the pipe distribution system.

Q. Well if you bring the basis of your allowance for gates and valves down to the level of your Chattanooga prices, how much would it reduce the estimated cost or value of valves in the Knoxville plant as it enters into your estimate of $618.000.00 with the 16% and without it?

A. I think there is about 8% difference between the prices made at Chattanooga and at Knoxville on an average. That makes a difference in cost of $1641.60 without the 16% and $1904.25 with the 16% added.

Q. Mr. Wingfield, I notice that in your estimate of intake tower and suction connection that you place the amount at $10723.25 with out the 16% being added for engineering and contingencies. With this per cent. added it enters into your estimate of $618,000.00 at $12438.97 does it not?

A. Yes.

Q. Now Mr. Wingfield, Mr. Elbert Wheeler has testified in this case on page 112 of vol. 2 that the cost of this intake as shown b*t*

the books of the water company is $8455.33. Can you explain how it is that you get the actual cost without the per cent. at $10723.25, with your per cent. added $12438.97?

A. If my estimate is in excess of the actual cost I have of course, put it larger than it ought to be. My estimate was based on what I thonght to be a fair price and was checked off by items given by Mr. William Wheeler.

Q. Did Mr. William Wheeler or any body connected with the water company tell you that the books of the company showed that this intake tower actually cost this sum I have stated here?

A. No.

3309 Q. What did the statement show that the cost of it was as presented to you by Mr. William Wheeler?

A. Practically what I have there; I just checked the items and agreed with them.

Q. Now if Mr. Elbert Wheeler's statement of what the books show this intake tower to have cost is to be adopted rather than your estimate furnished by Mr. Wheeler, what is the excess that enters into your estimate over the actual cost as shown by Mr. Elbert Wheeler with and without the 16% added?

A. Without the 16% it would be $2267.92.

Q. Have you the statement that Mr. William Wheeler furnished you which you practically adopted as the cost of the intake tower?

A. Yes.

Q. Have you it present with you?

A. Yes.

Q. Will you make it an exhibit to your deposition?

A. Mr. Wheeler did not furnish me this data; it was furnished by Mr. Kimball.

Q. Well will you just read off those data and let them go into the face of your deposition?

A. 800 cubic yards of excavation at 50 cents; 135 cubic yards in water, rock at $3.50; 460 cubic yards of Portland cement, concrete at $9.00; coffer-dam $240.00, pumping 60 days at $2.50 a day $150.00, painting, cleaning river guage and sundries $100.00 iron "I" beams, timber and flooring complete $90.00; screens and screening for intake tower gallery $100.00; ejector and connections including drainage $260.00; bridge and railings including erection $300.00; gates and gratings for port-holes including stands, erection &c. $1500.00; 24 inch 6 — gate set complete $175.00; 24 inch connecting pipes, including laying $250.00; rip-rap, grading, sodding &c. $300.00; angle iron on nose $60.00, total $8537.50, to which 20% is added $1707.50, total $10245.00.

The above items are for the intake tower itself.

3310 Those that I now read will be for the intake: 78 yards of excavation at 50 cents, $39.00; 101 yards of rock at $3.00, $303.00 coffer-dam, lumber, carpentry, sand box and labor $900.00; steam and hand pump $150.00; 24 inch cast iron pipe, laid complete with machine flanged in screen chamber 105 feet at $3.75, $393.75 one 24 inch quarter bend $50.00; setting same $60.00; one 24 inch sluice gate with fittings and setting complete $250.00; one 24 inch

flange and bell pipe machine set for additional connections $40.00, total $2185.75, to which is added 20% $437.15, making $2622.90.

Q. Now, the amount of $10723.25 which you have adopted as the cost and value of the intake tower, is this statement of Mr. Wheeler's with his 20% added, is it not within a few dollars?

A: Without the 20% added.

Q. And is the figures he furnished you?

A. No; I got the statement from Mr. Kimball, and I understand that they are Mr. William Wheeler's estimate of the value.

The further taking of this deposition was adjourned until 2:00 o'clock P. M.

3311 WEDNESDAY, *January 13th*, 1904—2 o'clock p. m.

Continuation of cross-examination of NISBET WINGFIELD by G. W. PICKLE:

Q. Mr. Wingfield, did Mr. Wheeler or Mr. Kimball furnish you a statement similar in character to that which you have given as to the intake tower with reference to the Lonsdale Beaumont stand pipe?

A. It was in this statement, but not itemized in the way that I made up my computation.

Q. What was the statement; give it verbatim as it was furnished to you by Mr. Kimball or Mr. Wheeler?

A. In the paper which Mr. Kimball handed me which purported to be a statement from Mr. William Wheeler, the Lonsdale standpipe is put down as follows: Stand-pipe 25x70 feet complete including foundations, $6400.00, to which is added $1280.00 making a total of $7680.00.

Q. What statement was furnished you with reference to the other stand-pipe; give it also verbatim?

A. In reference to the other standpipe there was furnished in the same way by Mr. Kimball the following statement:

Excavation and grading 80 yds. at 30¢	$24.00
Concrete, 90 yds. at $4.25	382.50
11200 brick in cement at $15.00	168.00
17000 vitrified brick in cement at $22.50	38.25
6.32/100 cubic yds. of cement grout at $13.00	32.16
16 inch special flange quarter-bend with footing and flanged connecting pipes	60.00
210,000 pounds plates erected complete, including balcony, &c., at 5 cents	10500.00
Total	$11254.91
To which is added 20%	2250.98
Total	$13505.89

3312 Q. Now, excepting the per cent. added, what changes if any did you make in the amount or aggregate of this statement furnished you by Mr. Kimball?

A. The difference in totals aside from the percentage added for contingencies and engineering is $9/09.

Q. Your estimate is $9.09 larger than that handed you by Mr. Kimball?

A. Yes.

Q. Now, will you please furnish the data that they gave you with reference to the reservoir on that statement which you have in your hand, being the same one from which you have read these other extracts?

A. 2 reservoirs containing each by estimation 1675000 gallons, since measured and found to contain 1800000 gallons each. Earth work, embankment and partition with puddled bottom and sides covered with concrete and brick paving laid in cement on edge, slopes, soiled and seeded, brick paving walks laid in cement on embankment and partition all enclosed in wood fence amounting to..... $27500.00

Wire fencing around basins labor $35.00, material $70.00 ..... $105.00

$27805.00

To which is added 20%..... 5521.00

Making a total of..... $33126.00

Q. Well, setting aside the per cents., what is the difference between your's and Mr. Ludlow's estimate and figures there furnished you by the water company?

A. Exclusive of the percentage in either case, our figures are $2803.36 less than that in the schedule obtained from Mr. Kimball.

Q. That was the largest change that you made from the prices furnished in the schedule by Mr. Kimball, wasn't it?

A. I don't know about that. I haven't compared them item by item except in the instances of the minor items that I had
3313 adopted.

Q. What was the aggregate of the statement furnished you by Mr. Kimball upon which you and Mr. Ludlow based this statement of yours—what was the aggregate of amount?

A. We did not base our calculation in any way on the statement furnished by Mr. Kimball, with the exception of the items I mentioned a few minutes ago.

Q. What was the aggregate appended to that statement of the water company, if there was such an aggregate?

A. I don't know that the statements furnished the same items, or rather I don't know that the statements covered the same items. I have never checked them over item by item. Mr. Wheeler's analysis goes further than the cost of duplication.

Q. I am asking, Mr. Wingfield, as to the physical replacement of the plant or items up to that point—what did they aggregate?

A. The aggregate in the statement furnished me by Mr. Kimball from which quotations have been made for replacement of the physical property seems to be $648,616.83. My estimate of the total

replacement of $618,100.24 makes a difference of $30,516.59 my statement being that much lower than the statement furnished by Mr. Kimball.

Q. Well, now, you have indicated that about $3,000.00 of that was on the reservoir. Will you indicate the other larger items on which this difference occurred?

A. I haven't analyzed them with reference to comparison.

Q. Well, pick out some of the larger ones?

A. Shall I take the pumping or river station as a whole?

Q. Well, yes.

A. My estimate of the River station and equipment as a whole was $88,453.58. The schedule handed me by Mr. Kimball shows a total for the River station and equipment of $93,822.99 which makes my estimate $5,369.41 less.

Q. Now, what was that on, do you know?

3314 A. That was on all the property at the River station.

Q. But do you know on what particular items you got less?

A. I hardly think there was an item except intake tower, floors and windows on which we agreed.

Q. Well, go ahead.

A. At the filter station my estimate was $111,075.15; the schedule obtained from Mr. Kimball showed $116,721.93, which shows my estimate to be $5646.78 less. In the pipe system and appurtenances my estimate was $383,927.64. Mr. Kimball's memorandum was $403,428.91 which shows that my estimate is $20,501.27 less.

Q. So that the $20,000.00 of the $30,000.00 difference was on the pipe system and appurtenances?

A. Yes.

Q. Was that on the price of pipe chiefly?

A. Without going into any calculation as to the exact difference, I will state that on pipe alone the difference is very small. After figuring it I find that my price for the total tonnage of cast iron pipe is $451.50 more than shown in the statement of Mr. Kimball.

Q. At the time you were first expecting to go on the stand when you were here investigating the plant, you were $9000.00 nearer together than you are at this time, were you not?

A. Yes.

Q. You and Mr. Ludlow?

A. Yes.

Q. Who dictated or made up this statement that you have filed in this case, you or Mr. Ludlow?

A. We did it jointly with the exception of two or three items which I changed after I left here, and which I submitted to Mr. Ludlow through the mail for his approval. Each item was figured separately and we agreed on the price of the units.

3315 Q. Now I believe you stated -while ago, but I don't know whether it went down or not, that in the statement pipe was figured from $23.50 to $26.00?

A. Yes.

Q. How is this difference explained?

A. It has been the custom, as a rule, for foundries to make a

difference in price between the small and large size pipe. If however a contract was let for a large quantity of pipe as a whole it is probable that they would make an average lump price for the whole job and that is the way I took it. As a matter of fact the foundries charge from $1.00 to $2.50 per ton more for 3 and 4 inch pipe than for the larger sizes.

Q. But that is only where you make a special order for 3 or 4 inch pipe or one or more other sizes; that rule does not prevail where you order a large quantity of pipe of all the several sizes, does it?

A. It prevails to this extent, that in making up a price to be submitted the foundry will figure the different sizes at the price they purpose to furnish it and then make an average lump price for the whole job. They claim that there is a difference of from $1.00 to $2.50 per ton in the cost of manufacturing.

Q. But any bids submitted for substantial quantities of pipe of several sizes, the bid is uniform upon the whole quantity, isn't it?

A. As a rule it is.

Q. Isn't that the ordinary rule for bidding on pipe?

A. In the majority of cases it is. I have bought pipe both ways.

Q. Mr. Wingfield, you had a map here, promised one the other day as to the price of pipe; I would like to have it submitted and examine it. I ask- you the other day to extend this back say to 1896 or 1897. Have you done so?

A. No, not yet, and I hardly think that would show a fair
3316 variation in prices unless you went back beyond that.

Q. Well I want it extended back that far.

A. In 1896 and 1897 the price of pipe was the lowest it ever reached in this country, and probably the lowest it will ever reach again.

Q. Now have you filed a partial map running from May 1900 to January 1904 less than a year prior to the date of our present inquiry and nearly two years subsequent to that date. What does this map purport to show?

A. It purports to show the cost of cast iron pipe delivered in Knoxville based on prices which I obtained after duly advertising and letting contracts for pipe in Augusta, the difference in freight rate between Augusta and Knoxville of 80 cents per ton being deducted from the Augusta price.

COMMISSIONER: Where, from Chattanooga?

A. Yes.

Q. Now if I understand this chart properly, it shows that on November 5, 1900, and on February 1, 1900, and on May 1, 1901, the cost of cast iron pipe delivered f. o. b. cars in Knoxville would have been $20.00 per ton?

A. Yes at the time those prices were obtained we advertised for a month and obtained bids from all of the foundries in the country on about two thousand tons of large pipe, no pipe being less than 8 inches—Mr.——.

Mr. PICKLE: My insistence is for the extension of this chart showing prices of pipe back of May 1/1900, for at least two years.

COMMISSIONER: The request of Counsel to have witness explain his diagram back of May, 1900 is over-ruled for the reason that the evidence itself is a mere circumstance showing the nature of the wave in the price of pipe and not fixing the price of pipe for
3317 this case; that being my judgment as to the effect of it.

Q. Now I will ask you what amount of pipe was involved in each of these three sales upon which you have based the opinion that the price of pipe at Knoxville on these dates was $20.00 per ton?

A. I do not remember the exact amount of each contract, but the total at that price was approximately two thousand tons of pipe from 8 to 20 inches in diameter.

Q. Now in these three instances the quantity of pipe was offered for competitive bidding by all pipe concerns, weren't they?

A. Yes.

Q. And the contract was let to the lowest bidder?

A. Yes.

Q. What were the prices actually bid for the pipe excluding the question of freight rates for the present in these particular instances?

A. The prices were all made f. o. b. Augusta 80 cents more than shown on the diagram.

Q. Were these prices made from the Chattanooga Pipe Works?

A. Yes, all of them.

Q. How far is Augusta from Chattanooga?

A. It is about 300 miles. The freight rate is $2.40 to Augusta from the foundry.

Q. And what is the freight rate from Chattanooga to Knoxville?

A. I am informd that it is $1.60 and on that basis I figured my estimate.

Q. Now you substituted the Knoxville freight rate for the Augusta freight rate at Chattanooga and arrived at this price of $20.00 per ton at the date of sale?

A. Yes.

Q. And these sales were made at competitive bidding, all three of them.

A. Yes.

Q. Now don't you know that about the same time a sale was made in the spring of 1901 at Nashville at about the same price?
3318 A. I don't know any thing of that.

Q. You don't know anything about that?

A. No.

Q. These sales at Augusta were sales that you personally conducted as a purchaser?

A. Yes as a purchaser.

Q. Do you know anything about the Mobile purchase of pipe?

A. I do not except I have been informed that it was very low to the contractor. The city must have paid a pretty good price for it for the contractors made about $125,000.00 profit.

Q. Out of the erection of that plant?

A. Yes.

Q. Well the pipe people protect contractors in a sale to them a shade cheaper than they will to cities?

A. They frequently do.

Q. Well wasn't that the general rule with the pipe people to protect them to the extent of $1.00 a ton?

A. I cannot say as to that. They never have done it with me in the two or three jobs I put in as a contractor.

Q. But don't you know that it is usual and frequently done?

A. I believe that it is.

Q. Now have you figured the pipe in this case at $24.00 as of March 31, 1901. Now if it was put down to the price of $20.00 which you have ascertained to be the price at Knoxville on the basis of the sales made to yourself about that date, what would be the difference between the cost of the pipe as figured by you and as fixed by the price of $20.00 on the basis of your own purchases.

A. $24,504.00.

Q. And in addition to that $24,504.00 you have figured on to the value of pipe the 16% amounting to nearly $24,000.00 haven't you; I mean the 16% for engineering and contingencies.

A. I have added on the 16% in addition to the price of $24.00 said 16% amounting to $23,523.84.

3319 Q. I see an item of specials under the pipe distribution system of $5880.96 being 4% of the amount of pipe; at what figure did you figure that per ton?

A. I took the 4% of the cost of the pipe at the amount that would probably equal the amount of specials, that being the un-versal experience. The price of pipe and the price of specials usually vary in the ratio of 2½ to 1 in cost.

Q. Well now if pipe is to be reduced from $24.00 to $20.00 and the 16% is not to be allowed upon it, what would be the reduction on this item giving the reduction in a separate item?

A. The deduction without the 16% would be $980.16; with the 16% added $1136.98.

Q. You did considerable construction, I mean in the way of putting in pipe distribution during the spring of 1901; or pipe purchased during that period, didn't you?

A. Yes.

Q. And you put it all in your pipe that cost you at Augusta $20.80 delivered, didn't you?

A. At that time I did.

Q. Now passing to the laying of pipe. What does the laying of pipe include? I mean the item that you give as the cost per foot of laying it?

A. The drayage from the cars to the ditch, digging the trench furnishing the lead and yarn necessary to lay it, putting the pipe together in the trench and joining it, setting all the specials at the proper places for fire hydrants and street crossings, setting the valves and replacing the streets, except where the paved streets have been encountered, and in those instances I have made a separate item of replacing the pavements.

Q. What do you mean by paved streets?

A. Any street that has been improved, and any pavement of any kind, either brick, Belgium block, macadam or gravel put on
3320 it.

Q. And you include everything in the price of laying pipe except the restoring of a street of that character?

A. Yes.

Q. Well now in your estimate in the Chattanooga case that included everything except the restoring of the streets of the character you name, didn't it?

A. I am not certain how I fixed that. I may have put in rock excavation and replacing of the streets all in a total and then divided it up. Estimates are frequently made both ways.

Q. Didn't you include in your estimate in that case rock excavation?

A. Yes I did.

Q. I mean in the price of laying pipe.

A. Yes, and possibly the replacing of the streets, but of that I am not certain unless I could find a record in the Chattanooga case.

Q. What were your figures for laying pipe per foot in the Chattanooga case?

A. I don't remember off hand.

Q. I mean the figure which you say included rock excavation?

A. I will see if I can find it from the record anywhere.

Q. For the purposes of comparison I will add to the question, just give the prices of Chattanooga and Knoxville on the several sizes of pipe.

A. I see from the Chattanooga records that the cost of restoring pavements was not added in the price at Chattanooga, that being in addition. The information you asked for is as follows:

3321

3	inch	pipe	Chattanooga,	12	cents,	Knoxville,	10	cents.
4	"	"	"	14	"	"	12	"
6	"	"	"	16	"	"	16	"
8	"	"	"	19	"	"	18	"
10	"	"	"	21	"	"	22	"
12	"	"	"	23	"	"	27	"
14	"	"	"	35	"	"	35	"
16	"	"	"	42	"	"	43	"
18	"	"	"	50	"	"	50	"
20	"	"	"	60	"	"	60	"

Q. And your Chattanooga prices included the rock excavation?

A. No extra was charged for rock excavation at Chattanooga, and if any calculation on that was made it must have been added to the prices given.

Q. You find no dditional charge for rock excavation from that which you have given for laying pipe here and in the Chattanooga case?

A. None.

Q. The prices are practically the same being slight variations on some sizes of pipe?

A. Yes practically; some seem to be higher in Knoxville than at Chattanooga. I made them up entirely independent and did not remember what I had figured on in the Chattanooga case both being fiured from experience in that line.

Q. Now in your estimate of pipe laying at Knoxville, you have an item, have you not of 2871 5/10 cubic yards of rock excavation at $2.00 per yard amounting to without the 16% $5743.00 and with the 16% $6661.88, have you not?

A. Yes.

Q. How did you get at that quantity and price of rock excavation at Knoxville?

A. I took an estimate of the quantity made by Mr. Kimball.

3322 Q. On the memoranda that he furnished you?

A. I don't remember whether I got it from the memoranda or asked him direct.

Q. Well just give what the memoranda says about rock excavation for trenches, will you?

A. 2871 49/100 cubic yards at $1.75 $5225.11.

Q. And you and Mr. Ludlow put it at $2.00 a yard?

A. Yes, that being an average of what it has actually cost me to do it.

Q. You haven't done any such work in Knoxville, have you?

A. No.

Q. Have you consulted anybody in the way of plumbers or contractors that have done any such work locally here?

A. No.

Q. You encountered about as much stone in Chattanoga as at Knoxville, didn't you?

A. Not having laid any of the pipe in Knoxville, I could not say how much stone there was, and so I took this memoranda of the quantities. In Chattanooga, I knew each street in which rock had been enocuntered, because I laid the pipe myself, and in those special sizes I put the price of rock in my Chattanooga estimate and that accouts, in some way, in the seeming discrepancy in the price per foot.

Q. What per cent. of stone did you meet with in Chattanooga?

A. I couldn't tell you off hand without going over the ground. I made all those calculation with a map before me drawn to a scale and the data that I used was adduced in that way.

Q. Well it wouldn't depend upon the size of the pipe very largely as to where you would find stone?

A. No, but it would influence the cost of that particular size in any street where rock were encountered.

Q. Well now do you remember any street or any size of pipe for which you made any addition in your estimate in the Chat-

3323 tanooga case on account of rock excavation, if so what amount?

A. I could not state from memory what I added there, but presume that where I calculated rock would be struck, I calculated for it and added it into the price.

Q. Well there is nothing in your deposition here that indicates it, is there?

A. Nothing.

Q. What did the memoranda furnished you by the water company as to restoring street surfaces show?

A. 205,376 9/10 feet of macadam, and 16,404 2/10 feet of brick by actual measurement that was in the memoranda.

Q. Did they fix any prices on it?

A. Yes the price fixed for restoring macadam streets was 6 cents per lineal foot and for restoring brick pavements 60 cents per lineal foot.

Q. Well now I find an item under your pipe distribution system of 205,377 feet of macadam restored at 10 cents, $20,537.70 that as to price is 4 cents in excess of what the water company's statement claimed, was it not?

A. Yes my experience on that line covering a good many hundred thousands of feet having shown me that Mr. Kimball's estimate was lower than such work usually costs.

Q. But certainly Mr. Kimball would know better what this work had actually cost and what such work was worth in Knoxville than you and Mr. Ludlow, wouldn't he?

A. I couldn't say to what extent he has kept tab on it. I doubt very much that it was kept as a separarte item at all.

Q. Now will you state how much this additional 4 cents on the foot amounts to with and without the 16% for engineering
3324 and contingencies.

A. Without the 16% the 4 cents difference would amount to $8215.08; with the 16% added the difference would be $9529.49.

Q. So that you added that much more than the water company claimed on account of restoring macadam?

A. As I understand it, this memoranda that I have was not what the water company claimed as far as we were concerned. It was more a memoranda to facilitate the work of hunting up the different items. I have not used the amounts shown in this schedule furnished, in any way or at any time except in the case of the items already enumerated. In every instance I have made my own estimate of the value of each item and put it in at what my judgment called for—in some instances lowering the price shown for that item in the schedule and in other instances raising it.

Q. But in this instance you did it without any knowledge of what this sort of work had been done for or could have been done for at Knoxville?

A. I have never had any experience in this class of work at Knoxville but have had in at least twenty other places, and my figures are based on that experience.

Q. And you set up your judgment against the statement of Mr. Kimball in this instance and allow about $9000.00 more for replacing the macadam than he thought the work was worth?

A. If the 6 cents named in the schedule is Mr. Kimball's idea of the cost, then my judgment is that he has it too low by the difference shown.

Q. Now you have an item of 16,404 feet of brick pavements re-

stored at 50 cents a foot making $8202.00. Now if this plant was constructed without placing any of the pipe under brick
3325 pavement, then this $8202.00 with the 16% added to it would represent as between the people and the city of Knoxville something that the company had never paid at all, wouldn't it?

A. If there are no brick pavements on the streets where the pipe mains exist, that item ought not to be there; but if there are brick pavements, no matter whether laid before or since the pipe was put down, that pavement would be added to cost of distribution system if pipe were replaced.

Q. Conceding however that such an item might be a proper one strictly in a replacement value at a specific date, yet it does not represent, in the case I suppose, any expenditure of money by the water company, does it?

A. There was no expenditure by the water company for that item if there was no pavements when the pipe was laid.

Q. And when coming to fix the value of the plant which the company has attributed to belong to that item, though it might be considered in replacement merely, it shouldn't be considered in that value upon which the company would be entitled to a return, not having invested the same nor paid a dollar of it?

A. If you figure the value of the plant on a basis of its cost and not on a basis of its duplication, why then that item ought not to show.

Q. Well then, no item ought to show when you come to the final test of value, if the people are to be held to the water company for a reasonable return which the people themselves contributed or whic- is a mere supposed item for which the water company has not paid anything, shouldn't it?

A. That is true provided you give the water company credit for the expenses it has been to in addition to mere cost of duplication. It would be as fair for one side as the other.

3326 Q. What do you understand the basis upon which the reasonableness of water rates should be tested?

A. There are a number of causes which would contribute to the value of a plant.

Q. I am asking for the basis of value?

A. The basis that I have always figured on is a reasonable interest on the value; a sufficient sum in excess of that to keep up all of the repairs and replacements, and in addition to that, all the operating expenses—legitimate operating expenses, and on top of that some small reasonable amount as profit. I don't think that water companies can expect to get the large returns that some commercial industries do.

Q. You do not seem to comprehend the question. I am asking you for the basis; whether you consider the cost of the plant, the replacement cost or what; what is the basis of value you understand upon which water rates are to be computed? In other words, I am asking you whether it is the cost of the plant, or the replacement cost of the plant, or the actual value of the plant that should be the basis, in your opinion of the calculations relating to the reasonableness of rates?

A. Before answering that, I shall have to get you to define the meaning of "your actual value."

Q. I am not defining actual value more than to say that which the thing is worth at the particular time?

A. No one item alone can determine the value of a water works plant. The cost of duplication should be taken into consideration, but that only in connection with the further cost which the water company has been to to establish its business, and also the value of that established business to the company capitalized. No one of these items alone is sufficient to determine the actual value.

Q. Now anything that the public has contributed of course by the way of donations to the water company should not be con-
3327 sidered in the value of the plant for purposes of this sort, should it?

A. I should think not if the Water Company has been to no expense in any manner.

Q. And it is for this reason in the Chattanooga case you excluded and didn't consider the hydrants or services, and for that reason you agree that the services shouldn't be considered in this case, if I am correct that they were put in by the consumers?

A. Yes.

Q. Now the fact that the public has laid a brick pavement over existing pipe, or has put macadamized street over pipe that had already been laid oughtn't to be made a basis of increasing water rates against the public, ought it?

A. Not if you put it that way; it certainly has to be considered in the cost of replacement.

Q. I will agree that it might be properly considered in the cost of replacement, but the cost of replacement is mere evidence of value, and shouldn't it be modified where that condition exists; that the pipe had been laid originally by the company without any cost as to replacing macadam or brick when that is the real fact in the case?

A. My idea of the cost of replacement is that every condition which exists at the time of replacement is made will have to be taken into consideration—in arriving at the true value of the plant, all of those items should be taken into consideration for or against the company.

Q. But if you were to charge against the public, as is done here say $15,000.00 on account of the public having placed brick or macadam over the pipe of this company, which really is a benefit to it and protects it, you would make the public pay a pretty heavy penalty for putting this material above the pipe of the company, and that without the company having paid anything additional for that amount?

A. You are assuming that the cost of duplication is going
3328 to be taken as the value of the plant.

Q. No, I am just assuming the contrary; that the cost of duplication, where a fact of this sort appears in it, that this sort of fact should be eliminated from it; that it don't represent any investment by the company, and don't represent any additional value to the plant, and is something which the public shouldn't be required to account for on the question of reasonableness of rates?

A. I will agree that that statement of the case is true, provided the water company, on the other hand, is given credit for investment that don't appear from the nature of the case in a replacement estimate.

Q. I don't know what you mean by the last statement, but you agree to my proposition that the public should not be made to pay a penalty of $15,000.00 or $20,000.00 for having placed brick or macadam over existing pipe of the company?

A. That is true.

Q. Do you know as a matter of fact, that in Mr. Wheeler's estimate of fair construction cost of this plant up to March 31st 1901, there is no charge for restoring brick pavement?

A. No, I do not know it.

Q. Do you know that as a matter of fact that his charge for restoring macadam was based on one-half the length of the cast iron pipe laid up to that date at 6 cents?

A. I don't know anything about that. The memoranda upon which I based my estimate was given me by Mr. Kimball, and it gave the number of lineal feet of macadam and brick at exactly the figure I have stated in my schedule.

Q. Well if it be true that in Mr. Wheeler's statement he used one-half the footage of cast iron pipe at 6 cents a foot as the basis for restoring macadam, then your estimate here is considerably in excess of that, isn't it?

A. I don't know as to that without figuring it.

3329 Q. Well just figure it and state how much it is in excess.

A. The estimate that I have made purports to be by actual measurement and of course would be better evidence than any assumption of percentage of the pipe line.

Q. You say "purports to be by actual measurement"?

A. Yes.

Q. You made no measurements?

A. No I went by Mr. Kimball's measurement. If 50% of the pipe mil-age is assumed as the proper length for restoring macadam streets and 6 cents per foot is assumed as the price, the difference b-*wteen* that item and amount would be $11,923.26 without the 16% and $13,830.94 with the 16%.

Q. Now I state and assume that Mr. Wheeler and Mr. Kimball in their statement of the fair construction cost of this plant made no charge for restoring macadam, or brick, or for rock excavation with reference to laying of wrought iron pipe. I will ask you how much allowance on that account is embraced in your statement now with and without the per cent.?

Mr. CALDWELL: We except to the statement of the question, as the cost of restoring macadam and s-reets and rock excavation does not appear in the analysis of William Wheeler and Mr. Kimball. In so far as the assumption goes, it is all right.

COMMISSIONER: The complainant having stated its objection to the assumption of fact, the witness may answer.

A. For restoring streets and macadam and brick, and for rock excavation where wrought iron pipe is laid, my estimate is $6076.30, with the 16% added $7048.46.

Q. Now Mr. Wingfield, mu assumption of what Mr. Wheeler's statement showed has been controverted by exception. I hand you vol. 2. of the evidence in this case, on page 450, being a part
3330 of the deposition of William Wheeler, and I ask you to state if he does not make this statement Verbatim: "Q. What did you charge for restoring macadam per lineal foot additional to the above? A. I estimated that macadam was to be restored upon one half of the length of those streets in which the cast iron mains were laid, but excluding wrought iron smaller pipes, and that the cost per lineal foot of such macadam is 6 cents, all of which is set out specifically in my analysis"?

A. Yes.

Q. Then the above item at $6076.30 for restoring macadam, brick pavements and for rock excavation on wrought iron pipe is additional to anything that Mr. Wheeler claims in his estimate, according to that statement, isn't it?

A. It is in addition to anything he has—provided he made no estimate for it.

Q. Well he has stated that he hasn't charged anything for it, has not he?

A. Yes.

The further taking of this deposition is adjourned until Thursday morning, January 14th 1904 at 9 o'clock a. m.

3331 THURSDAY MORNING,
January 14th, 1904—9 o'clock a. m.

The further cross-examination of NISBET WINGFIELD continued.

By G. W. PICKLE:

Q. Mr. Wingfield, are the prices for the various sizes of wrought iron pipe set out in your statement in this case practically the same as laid by you in the Chattanooga case?

A. I think the price for laying was practically the same and the price of pipe itself was according to the market price at those two dates.

Q. Well now the price of laying was practically the same in both of your estimates, both at Chattanooga and here?

A. As I remember it.

Q. Now in the Chattanooga case you made no additional allowance for restoring brick pavement or rock excavation, did you?

A. Yes I made allowance for restoring pavements and I believe figured on rock excavation; the latter however, I am not sure.

Q. Do you mean as to wrought iron pipe?

A. Yes as to all pipe.

Q. I wish you would refer to your deposition you have before you and show where you made any allowance for restoring street surfaces over wrought iron pipe or for rock excavation in trenches where the pipe was laid in the Chattanooga case?

A. As I remember the wrought iron pipe wasn't laid in that case where improv-ments had been made, but I wouldn't state that posi-

tively, but my recollection is that nearly all that pipe was in the suburbs. From a copy of the deposition in the Chattanooga case, before me, I see that I made no division between cast iron and wrought iron as far as restoring street surfaces are concerned, so cannot state what percentage applies to each kind.

Q. Well you don't find that you made any allowance of that character?

A. I find that I made allowance for restoring streets on pipe lines at Chattanooga as a whole; that is on the wrought iron
3332 and cast iron treated jointly.

Q. Do the allowances you made amount to as much as the cast iron pipe?

A. I am unable to state whether or not I allowed anything at all on wrought iron for the reason stated above, that it is possible that no pipe of that character was laid in paved streets. If however any wrought iron in the Chattanooga works were laid on paved streets, then I allowed for replaceing the streets.

Q. But you find no such allowance specifically there?

A. There is no allowance stated specifically for either kind of pipe, the allowance being on the pipe system as a whole.

Q. Well now Mr. Wingfield, your allowances for wrought iron pipe laid per foot are as follows: three and one half inches, 43 cents 3 inches, 37 cents; 2½ inches 31 cents; 2 inch 26 cents; 1½ inch 22 cents; 1¼ inch 19 cents; 1 inch 16 cents; ¾ inch 12 cents; ½ inch 10 cents. Now I will take the item of 2 inch pipe which is the largest in amount of any one size, being 33923 feet at 26 cents per foot amounting to $8819.38 without the 16%. Now will you please state how you make up that 26 cents?

A. My estimate was 10 cents for laying the pipe and 16 cents per foot as the cost of the pipe delivered on the works, and all of the other items were figured in about the same proportion.

Q. Did you take a bid for the city of Augusta for laying 2 inch galvanized pipe on February 18, 1901, which was to include the value of the pipe and the laying?

A. No, I have never taken a bid of that kind; we have always bought the pipe.

Q. Well didn't you take a bid for laying 2 inch galvanized wrought iron pipe for the city of Augusta on February 18, 1901, at 1 cent per foot as the price of laying the pipe?

A. I have never had a bid of that kind or anything approaching that unless it was for just joining the pipes in the ditch.
3333 We have frequently dug our own ditches with our own chain gang and employed a man to screw them together. I don't remember that special instance, but from the price I am satisfied it must have been an instance of that kind. The usual price for digging the trench and laying that sized pipe is about 10 cents.

Q. Didn't you on the same day, take a bid for laying 6 inch cast iron pipe at 4 cents a foot?

A. I rather think so. That is just the same thing, the city furnishing all the material and doing all the labor, and the man simply putting it together in the ditch.

Q. Didn't you on the same day take a bid for laying 4 inch pipe at 3 cents a foot?

A. I think that is probably true laid in the same way.

Q. Well now Mr. Wingfield, did you about that time receive bids for the laying of any of these sizes of pipe?

A. Yes I let a contract to lay all that two thousands tons that was bought about the time we had under discussion yesterday.

Q. The city bought the pipe?

A. Yes.

Q. Did you receive bids for the laying?

A. Yes we advertised it and took bids just as we did for the pipe—that was that 2000 ton contract.

Q. What time did you take those bids?

A. At the same time practically that we took bids for the pipe.

Q. That would be February or March, somewhere there?

A. Somewhere there.

Q. What was that laying to include, rock excavation and everything?

A. There is no rock excavation in Augusta. It is soft sand and frequently we don't use a pick at all.

Q. Well now at what price was that pipe laid—the several kinds per foot—and give the different sizes, and give the successful bid?

A. The lowest bidder was Messrs. Hallahan & Costello of Augusta, and their bid and the price at which they were paid
3334 by the contract was 15 cents for 6 inch; 20 cents for 8 inch; 25 cents for 12 inch; 50 cents for 16 inch; 63 cents for 20 inch, they furnishing the lead and yarn, digging the ditch and refilling; in other words, doing just what I have figured on in the Knoxville pipe system.

Q. Restoring the street, didn't they?

A. Where any pavements were encountered the city restored the streets with its own force. We have a regular paving force there. I never let a contract any other way down there, for I have charge at both ends and can work it better.

Q. Well now did you let any wrought iron pipe to those parties?

A. There was a line of wrought iron pipe running from the city limits out to a little suburb, and that is the case I think you were asking me about just now. The city purchased the pipe and with its own regular gang dug the ditch, refilled the trench and Halahan & Costello screwed the pipe together.

Q. What do you figure the price of labor, or did you figure on the price of common labor in making your estimate up here?

A. I did not go into that specifically. I asked about what labor was worth here and was told in the neighborhood of $1.00. That is the same price that is paid in Augusta.

Q. For how many hours?

A. 10 hours.

Q. Yours is negro labor down there chiefly, isn't it—the most of it?

A. The most of it, yes sir.

Q. But you did not get down to the minutiae of figuring the amount of labor?

A. No sir, I didn't go into that; I just made it from my general knowledge of such matters.

Q. Mr. Wingfield, what is the price that you assign to pipe at Knoxville—cast iron pipe at Knoxville on May 1st, 1900, and on June 1st, 1900?

3335 A. $25.00 May 1st, 1900; $24.80 June 1st, 1900. Each one of those items on that plat represent an actual purchase by the city of Augusta.

Q. With the rates from Chattanooga, the common point to Knoxville substituted for the rates from Chattanooga to Augusta?

A. Yes.

Q. So as to make these the prices upon that basis at Knoxville?

A. That is right.

Q. What were the quantities purchased on May 1st, and June 1st, 1900, upon which you make that basis and at what sizes of pipe?

A. I don't remember the exact quantity but there were three or four thousand feet of 6 and 8 inch pipe.

Q. A car load or so?

A. Yes we have never bought less than 3 or 4 car loads at a time.

Q. I notice that coming forward to January 1st, 1902, you have the price of $23.60 at Knoxville. What was the size of that purchase upon which you based that price?

A. I think probably about the same quantity; that is 5 or 6 car loads of pipe from 6 to say 10 inches.

Q. Have you anything there by which you can give this with exactness?

A. No sir I have not.

Q. Coming to November 16, 1902. I find you have a price of $31.95 and January, 1903, $31.45. What were the quantities of pipe purchased at those dates and what were the sizes of pipe?

A. As near as I can recollect the quantity on November 16, 1902, and January 1st, 1903 was approximately 500 tons of pipe varying from 6 to 12 inches in diameter.

Q. Well now coming down to November, 1903, you have a price of $24.60; what was the size of that purchase?

A. That was 6 inch, about three or four car loads.

Q. And the price had a downward tendency from January, 1903—didn't it—a decided downward tendency?

3336 A. Yes from November 16, 1902, to be more precise.

Q. Now let's go back on May 1st, 1900, what was the price in 1899, of pipe according to this same rule of your purchases at competitive sales?

A. I do not believe I can give you that from memory. I took what I have there from the records. In 1898 I could give it to you—it was very low.

Q. Well what was it in 1899?

A. I cannot give it to you in 1899, but in 1898 the price at Knoxville was $16.00 based on the Augusta rate.

Q. In 1898?
A. In 1898.
Q. Well you put it at $16.00 in 1898?
A. Yes.
Q. Well now give us the price in 1899, please the best you can?
A. In 1899, my recollection is that it was somewhere between the $16.00 in 1898 and $20.00 in 1900. It was going up gradually as shown there on the plan.
Q. How was it in 1897?
A. The latter part of 1897 it was about the same as it was in 1898.
Q. $16.00?
A. About that.
Q. How was it in 1896?
A. 1896 it was considerably higher.
Q. Wel- about what?
A. I don't like to say because I am just guessing at it now.
Q. Now in reference to these bids on the purchases that you made in 1901 and February, May and November, 1900, fixing the Knoxville price at $20.00; was there competitive by the several pipe companies at each of those purchases?
A. Yes; the United States Cast Iron Pipe and Foundry Company bid $20.80, the Glamorgan Foundry and Pipe Company at Lynchburg, Virginia, $21.50, R. D. Wood and Company Philadelphia, $23.00.
3337 Q. Now the United States Foundry & Pipe Company are at Chattanooga?
A. Yes.
Q. They are how far from Augusta and how far from Knoxville?
A. From Chattanooga to Augusta is 309 miles; from Chattanooga to Knoxville 111 miles. The freight rate from Chattanooga to Augusta on cast iron pipe is $2.40; the freight rate from Chattanooga to Knoxville on cast iron pipe is $1.60.
Q. Did these companies all bid on each and all of these sales?
A. On most of them they did. In some few instances the companies refused to make prices, claiming they couldn't furnish the goods in time.
Q. Did any other company bid on either of these sales you name?
A. No, but those three practically controlled all the pipe in the country. Dimmick refused to bid; said that he had contracts too far ahead and said that he could not furnish them. He was under contract at Atlanta at that time to furnish a lot of pipe.
Q. You have given the bids of the three proposed purchases; at what particular purchase were those bids given, on each and all of these or some particular one?
A. They are on those three that I have marked there $20.00, and the reason that they are all the same is that in letting the contract on November 5, 1900, provision was made to extend that contract, if necessary, so that on February 18, 1901, and May 1st 1901, the same rate applied.
Q. But in point of fact all of the pipe was lower and became lower

after November 5. 1900 and between that date and February and May, 1901, didn't it on the market, the general market price?

A. Not that I am personally aware of; I don't remember of having seen quotations.

3338 Q. Then you think the price remained the same from sometime in 1900 to May, 1901?

A. As far as the cost to us at Augusta was concerned, it was the same.

Q. Now Mr. Wingfield, what is the ordinary life of a water plant according to the opinion of yourself and other experts?

A. I have always figured, taking all of the elements into consideration, that about forty years would be the average life. Some parts of it would last two or three times that long and other parts not one-third, but I placed that as an average.

Q. What do you place the life of a reservoir at?

A. A reservoir properly constructed would have a very long life unless some accident occur-ed to it. I don't know that any limit could be put on it.

Q. It might commit suicide, like this one did?

A. Yes.

Q. Well we will suppose that is true with reference to the mere construction of a reservoir; but what is the life at which reservoir are ordinarily computed, looking to the fact that they may be outgrown by a city and requiring extension; there is a life isn't there a computed life?

A. Well I don't believe there has been one ever computed. The way this forty years is arrived at was the experience that the cities and companies have had throughout the country in making necessary renewals, and they have found that at a period of about forty years the company has practically renewed its plant.

Q. Well that is not the precise question I am now asking you I want to get your idea about that now as to the reservoir. What would you ordinarily assign as its life?

A. I would make its life indefinite. I would not give it any limit at all.

Q. Now let us take boilers such as you find at the pumping station; what life do you give to boilers?

A. If they are properly cared for they ought to run 15

3339 or 20 years.

Q. How about engines?

A. The life of an engine depends so entirely upon the care taken of it that it is hard to place an exact period. There is another difficulty in the way and that is in a large majority of instances, probably over 90% of the pumps are taken out on account of the increase in consumption, or changes to be made, or some other cause before they become obsolete. I should say however that if a pumping engine was allowed to stay in use for a continuous period, *nad* if it was properly cared for its life would probably be 25 years.

Q. Well now what about filters; what is the life of a filter?

A. Filters are a comparatively new construction and we have no data so far on which to base an opinion. I do not see anything

about a filter plant to wear out, with the exception possibly of some small items of teeth or other renewable features.

Q. Well I am now talking about the filters themselves?

A. Well that is a part of the filters.

Q. I will ask you about these particular filters—they are made of wood, are they not?

A. Yes they are made of cypress, and cypress tanks have been known to last for 100 years, if properly protected.

Q. Well what life do you give to them?

A. Well my answer is obliged to be indefinite, but I would say about 25 years. That is purely supposition.

Q. What about the life of a stand-pipe such as the Lonsdale one out here, Mr. Wingfield?

A. I have known a good pipe after having been erected 20 years. I would give the life from 25 to 30 years.

Q. Speaking of that stand-pipe out there, you took those plates as of what assumed thickness?

3340 A. 11/16 at the bottom, and ¼ inch at the top going up in steps.

Q. You didn't in fact measure the plates?

A. No.

COMMISSIONER: What would a stand-pipe die of, anything but rust?

A. That is all.

Q. So your estimate of quantity on that standpipe out there was just on the assumption that the plates were as you assumed them to be?

A. It was on the assumption that the plates were of the standard thickness of that size of pipe.

Q. Now if it wasn't of that thickness it would have been even a shorter life than you speak of, wouldn't it?

A. Yes.

Q. Well now Mr. Wingfield, the plant that you have replaced is supposed to be composed of absolutely fresh, new and unused material, isn't it?

A. Yes.

Q. Now you examined the engines or pumps over there at the station, didn't you—the Deane pumps?

A. Yes.

Q. How long has it been in use?

A. I don't recall. I couldn't tell of my own knowledge any way.

Q. Well say that it was put there in 1896—had been in use 6 years at the time of this estimate of yours; would — consider that Deane engine after that length of use, and that pattern of Deane engine the equivalent in value to the new Deane engine that you have put in its place in this replace plant; in other words if you should set the new one side by side with the old engine, would you consider the old and new engine equivalent in value?

A. The new engine would probably be more valuable than the old; the difference in value would depend entirely upon the

3341 way the pump has been handled. If the parts of the pump that wear are renewed as they should be, then a pump may

have been in use for a long number of years and still be as good as new. What I meant by the life of the pump being 25 years was not that it could not be used after that length of time, but that by the expiration of that time it would probably have been renewed in all of its parts.

Q. You mean of course by the purchase of a new pump ordinarily?

A. No, by the purchase of new parts as they wear out.

Q. I am not asking you what possibly may be done; you saw that engine over there did you not?

A. I didn't go through it.

Q. And we are assuming that it has been in use five years, and now I will ask you whether that engine, after five years' use, standing there as it is, is the equivalent of a first-class new engine—an up-to-date engine, such as you have estimated in this plant?

A. My opinion is that it is very close to the value of a new engine, because there is every evidence of the pump having been cared for in the proper way. I would place some small difference between the two, not more than 5% or 10%.

Q. Well isn't it so of all the used portions of this plant, especially the machinery that has spent a part of its life in work, that it is inferior in value on account of the wear and tear it has suffered, to a bran- new machine that you have placed in your estimate of the replacement of the plant?

A. As I said a moment ago, that depends entirely on whether or not the machinery has been properly renewed from time to time as the parts wear out. As a rule, a well conducted water works plant is in as good condition twenty years after its construction as it is at the time of erection, it being supposed that all parts that have been affected have been renewed.

Q. Now we will go to the cast iron pipe; what do you fix
3342 as the life of cast iron pipe?

A. It is impossible to fix any limit or life on that, because it has not been in use long enough to determine its life. I should say it would last 100 years.

Q. Well then, cast iron pipe that has been in the ground twenty years and served one-fifth of its life, according to your estimate — equivalent to fresh, new pipe that has just been put in the ground?

A. No, I don't think it is, but on the other hand the experience in almost every place is that pipe are taken up and replaced with new pipe before they deteriorate, the cause being the natural growth of a community which forces the substitution of large pipe for small.

Q. But still you estimate your plant as of March 31st, 1901, as being all absolutely new pipe, don't you?

A. Yes.

Q. Well now, in point of fact a large part of that pipe had been in the ground at that date 20 years and all of it some period inside of 20 years?

A. Yes.

Q. Well, now isn't it a fact, Mr. Wingfield, too patent to be denied that that pipe that was in the ground after 20 years or something

less, wasn't the equivalent of brand new pipe of the same size and quality of pipe put in March 31, 1901?

A. The old pipe is certainly not as good as new pipe would be if you figure that the pipe was going to remain in the ground until the full limit of its life has been reached, but that has never been done to my knowledge any where in the country.

Q. So that the old pipe at that date was not the equivalent of new pipe whether it was in the ground or out of the ground?

A. No, it wasn't equivalent unless you figure it as I figure it.

Q. Well, I am not figuring on futures. You have in point of fact figured it as new, fresh and first class pipe as of March 31,
3343 1901, haven't you?

A. Yes.

Q. There is no doubt about that?

A. No, sir.

Q. Well, now what is the life of hydrants, Mr. Wingfield?

A. That depends largely on the make.

Q. Well, such hydrants as you found here; what is their ordinary life?

A. If the valves, which are inexpensive, inside the hydrant are renewed from time to time as the wear, the life of a hydrant should equal the life of cast iron pipe. There is nothing about it to deteriorate.

Q. Well, where they would have been in use 20 years they would lose some of their value, wouldn't they?

A. Yes.

Q. You have figured them in here at the price of new hydrants, haven't you?

A. Yes.

Q. How about gates, stop-cocks, valves, &c.?

A. All of those things if properly cared for and the stems renewed as they wear, would equal cast iron pipe as they are practically of the same kind of material.

Q. How about meters; what is the life of meters?

A. The same question comes in there as to the renewal of the parts; the cast iron body of a meter would last as long as cast iron pipe. The inside or working parts would wear according to the use and probably would have to be renewed each 8 or 10 years. The inside parts would have to be renewed, but all of those parts are inexpensive. That is the way I figured on the whole plant, is that each part of machinery, pipe systems or filters, or anything else would be renewed as it became worn, so that the plant, at any special date would be practically as good as a new plant.

Q. Now about how often, Mr. Wingfield, are the pumps and
3344 engines of a plant ordinarily renewed and changed according to your experience and observation, by new ones?

A. My observation has been that new machinery was purchased by a large majority of water companies before the old machines were worn out, and it depended as to time entirely on the growth of consumption. There is hardly a community in this country which has

not grown so rapidly that constant reconstruction and additions were not necessary.

Q. And isn't it a fact that material affects a machine that has been in use several years, such as a pumping engine that it is liable to be supplanted in a shorter length of time than a new machine that is put in at the present date?

A. Yes, and for that reason we have always figured there should be set aside a sufficient sum from the earnings to take care of that.

Q. And that is called the depreciation fund?

A. Yes.

Q. And that is a fund which at reasonable interest will amount to the value of the plant in 40 years?

A. Yes.

Q. If set aside annually?

A. Yes, it probably would be expended annually.

Q. And it goes into construction, doesn't it?

A. Into renewals.

Q. Don't that go into the estimate of construction?

A. Yes.

Q. You wouldn't notice that otherwise in making up a construction account, that is to simply estimate those parts that have been created by the depreciation as part of the construction value of the plant?

A. The depreciation fund should equal an amount sufficient to keep the plant at all times in practically the same condition as a new one; that is the object of that fund.

Q. Well, when that fund is used the value appears in the
3345 construction or estimated construction value of the plant, don't it?

A. No, it is merely used to renew stuff that is taken out and has disappeared entirely from the plant.

Q. Well, now suppose you have used it for that purpose and afterwards go to estimate the value of the physical plant, don't the results of the use of that fund appear in the value or cost of the plant?

A. It does if you figure the plant as a new plant.

Q. Well, now if it has not been used at all and don't appear in the plant, it has no place in the estimate of a replacement in the depreciation fund of a physical plant, does it?

A. No, I think not.

Q. Now, Mr. Wingfield, have you in the office for running the Augusta plant a set of officers except those resident at the city of Augusta?

A. No, because the plant there is owned by the city.

Q. Well, you find it entirely practicable to run it with resident officers, engineers, treasurer, &c.?

A. Certainly, there would be no necessity for any office or officer outside of the city employees, because the city owns and operates the plant.

Q. And that is done well too, isn't it?

A. I necessarily think so.

Q. And it is much larger plant than the Knoxville plant too, isn't it?

A. Yes.

Q. You have very little traveling expenses of your officers in connection with the business of that plant, haven't you?

A. Very little.

Q. You don't keep two sets of books, one in Augusta and another in Boston or New York, do you?

A. No.

Q. Nor two sets of officers, one in Augusta and one in New York or Boston.

3346 A. No. I believe in all plants where foreign or *or* outside companies own the stock, it is the custom to keep two offices and two sets of book-. I know that applies to the American Water Works & Guaranty Company with forty-eight water works under its control.

Q. That is where they have a holding company over a number of companies, isn't it?

A. Yes.

Q. Mr. Wingfield, what is the rule as to computing—I mean among engineers—as to computing the cost of a reservoir by the number of million of gallons that it will hold; is there any such rule?

A. I don't know that there is; I have never followed it.

Q. Did you ever hear of it?

A. Only to make an estimate on, as a man would guess at the cost of a house by its size or the number of rooms; an eight room house so much, and a six room house so much.

Q. Well then there is no well known rule on that subject about estimating the cost of a reservoir at so many thousand dollars to the million gallons it will hold?

A. No, it could not be estimated that way to apply to all sections of the country, because the conditions are so different in different sections.

Q. Mr. Wingfield, in reference to the engine at the filter station which you estimate at $3624.15 and boilers at $1140.00 and $1025.00 you simply followed the memorandum furnished you by Mr. Kimball in that instance, didn't you, making only a few dollars difference as to the engines?

A. Yes.

Q. Mr. Wingfield, how does it affect the cost of delivering water as regards the distance from the pumping station or reservoirs at which it is delivered; in other words does distance add anything to the cost of delivering?

A. Yes.

Q. In what way?

A. In increased pressure necessary to overcome the friction in the pipe, or by the laying of a larger main for the longer distance in order to overcome that friction.

Q. Is there any other consideration that adds to it, such as

3347 length of pipe that is required for longer distance?

A. Yes.

Q. So that service in the delivery of water is somewhat greater, the greater the distance at which it is delivered from the pump station or reservoir, isn't it?

A. Yes.

Q. Now do you deliver any water outside the city of Augusta?

A. Yes, our reservoir is some distance out, about two miles out of the corporate limits, and we supply that territory between the reservoir and the city.

Q. You have good pressure?

A. Yes, Augusta is peculiarly well situated for the construction of a cheap plant. The reservoir is on a hill 350 feet above the city and the city itself is almost a dead level, which makes it comparatively easy to maintain any pressure we desire up to 350 feet at any point in the city.

Q. Now how do you adjust your water rates; do you charge all customers regardless of distance, the same?

A. We charge all consumers outside the city limits by meters and those inside the city limits are by an assessed rate, except in the case of large industries, hotels and office buildings, all of those are on meter.

Q. You don't deliver water to people outside the city any cheaper than inside the city?

A. The consumer pays more.

Q. And you charge more to the outsiders?

A. Yes.

Q. The service is worth more in some degree?

A. We go on the supposition that those people who do not contribute anything to the city of Augusta in the way of taxes should not be furnished water at extremely low rates that apply inside the city limits.

3348 Q. Suppose you were called upon to adjust expenses between inside the city and outside the city, how would you apportion them?

A. The service inside the city being necessary, I would first figure what it would cost, including all items to furnish the water inside the city limits, then I would find the difference between that and what it actually costs to deliver water both within and without the city limits, and that cost would be the cost outside.

Q. The cost outside would be some greater than the cost inside for delivery of the same amount of water?

A. No, the cost to the company, if the works inside the city were being operated anyway, would be much less to take on the additional work on the outside.

Q. Suppose the plant is built for all and at the same time, how would you adjust it?

A. If it is considered as a whole, each part should bear its proportionate expense.

Q. And would not the outside bear a little larger expense by reason of conveying the water at a greater distance?

A. I don't think so, because that is offset by decreased cost at the

pump station through the fact that it costs less in proportion to deliver a large amount of water than a small amount.

Q. Now let's suppose the plant is built outside and the city gets its supply of water from the outside plant, how would you adjust it then?

A. Well I would get at it in the same way. If it was built primarily for outside territory and the furnishing of the city was a mere incident due to the extension, I would figure the outside to bear the greater expense.

Q. Now Mr. Wingfield, whether the plant is built originally for inside or outside the city, or for both, isn't the plain dictate of justice that each party should pay for the water delivered according to the value of the service rendered and according to the quantity of water delivered inside and outside the city?

3349

A. Yes, it seems so, if figured properly.

Q. And if there is any difference to be made, isn't it to be made as against the outside parties as to whom you say there is a little greater service and expense, and in favor of the inside parties?

A. It seems so.

Redirect examination by J. W. CALDWELL:

Q. Mr. Wingfield, did you ever plaster a house, or supervise the plastering of one?

A. Yes, I have had it done in construction.

Q. What does it cost per square yard to plaster a house?

A. I think about 20 or 25 cents a yard.

Q. Well take it at 25 cents and calculate the cost of a cubic yard of sand plaster for an ordinary house; you can determine the thickness of plaster according to that observation?

A. Well that would make it about $18.00 a cubic yard.

Q. Now what are the contents of that ordinary wall plaster?

A. Lime, sand and hair.

Q. And you say it would cost about $18.00 a cubic yard?

A. That is my estimate on it.

Q. Now suppose you are building a wall a yard thick of ordinary plaster of the kind I have been asking you about, what would it then cost you a cubic yard?

A. Well probably not one-third of that.

Q. Do you ever figure plastering by the cubic yard?

A. Never.

Q. Would it be reasonable to figure it that way?

A. No.

Q. You have been asked several times in regard to your percentages for contingencies and engineering as applied to particular items. Is that percentage to be applied to particular items or to the whole cost of the plant proper?

3350

A. Properly to the whole cost of the plant. It is probable that any allowance would be exceeded in one instance and possibly lowered in another. The experience which leads to the placing of a percentage is on the plant as a whole, although in my schedule

for purposes of comparison I have divided it among the different items.

Q. Now as we have been comparing some incomparable things, I will ask you to look to the pump station allowance, including pumps boilers and connections in your replacement estimate, and state what the aggregate of the items, pumps, boilers and connections is there.

A. $29,515.10 without the contingencies.

Q. Well leaving out the contingencies, do you know when the Deane pump was put in?

A. I do not.

Q. We agree that it was in 1895, I believe?

A. I think so.

Q. Do you know when the Worthington pump was put in?

A. About 1900.

Q. Assume that the Deane pump at date March 31, 1901 had been in opperation for five and a half years, and the Worthington engine for two months, and suppose that the estimate of Messrs. Brown and Nixon of the value of pump engines, boilers and connection- on the 31st March, 1901 to wit: $21,420.00 is correct, what would be the extent of the depreciation in percentage?

A. There would be no depreciation on the Worthington pump, two months being too short a time to consider. On the Deane pump, if the plant has been properly looked after, I would put the depreciation not exceeding 5% to 10%.

Q. I am not asking that; I am asking what the depreciation as indicated in the price $39,267.00 and $21,420.00 would be?

A. 45%.

Q. So that with the Deane engine having been in opera-
3351 tion 5 years and the Worthington engine two months, the estimate of $21,420.00 by Messrs. Brown and Nixon being the value of the items indicated on the 31st March, 1901, there would taking your estimate upon the one part of replacement value and theirs of comparitive value on the other have been a depreciation of about 45%?

A. Yes.

Q. Now take the figures of Messrs. Brown and Nixon's replacement value of $31,970.00 and comparative value of $21,420.00 and find the difference between the two and tell me the per cent. of depreciation indicated there?

A. 33%.

Q. So that the result of their own calculation on their own basis is that Messrs. Brown and Nixon have depreciated those two engines and boilers 33% in the time that they have been in there?

A. It looks so from the figures.

Q. You assign 25 years I believe as the life of the boilers and engines?

A. About that.

Q. Now if Messrs. Brown and Nixon, in their replacement valuation of the reservoir fix that value at $10,532.39 and fix its value on

the 31st March, 1901 at $5500.00, that is a depreciation of between 45% and 50% isn't it?

A. Yes.

Q. Now if your valuation of the reservoir at $28,769.00 is correct as a replacement valuation of the reservoir and it was actually worth on the 31st of March, 1901, the amount fixed by Messrs. Brown and Nixon, to wit, $5500.00, what then would be the extent of the depreciation?

A. 80%.

Q. Then by comparing your replacement value with the comparative value of Messrs. Brown and Nixon would get a reduction of 80%?

A. Yes.

Q. And that the reservoir, as I understand you to say, has an indefinite life?

A. Yes.

3352 Q. Now in order that the Court may have the exact amount of depreciation assigned by Messrs. Brown and Nixon to reservoir work, put it upon the basis of $10,532.39 and $5500.00 and state the per cent.?

A. That is practically 50%.

Q. Now assuming that the reservoir was built in 1883 and has been in use since that time, what would you fix the actual depreciation at?

A. Nothing at all; the character of that work making it improbable that there would be any depreciation in value.

Q. Now let us make a comparison in regard to the pipe line. Take Mr. Nixon's valuation of the cast iron pipe, hydrants and valves for replacemtnt $190,704.00, his comparative value of the same item being $123,850.00. What per cent. of depreciation does that show?

A. 35%.

Q. Now then Mr. Wingfield, assume as substantially correct the statement that one-fourth of the pipe was laid in 1883, one-fourth of it between 1884 and 1893, and one-half of it between 1893 and 1901, and tell us if you can about — the per cent. of depreciation would really be?

A. I figure that the average time pipe has been laid under that assumed statement to be 10 years. The depreciation in my estimate of the life at 100 years would be 10%.

Q. As opposed to 35% shown by these tables?

A. Yes.

Q. About what is the life of wrought iron pipe, Mr. Wingfield?

A. It depends on whether it is coated or not; before it is laid wrought iron pipe, not galvanized, will last from 20 to 25 years. Galvanized pipe will probably last twice that long.

Q. You say you have had no experience with Warren filters?

A. I have not operated any; the only experience I have had with them was in connection with other plants.

3353 Q. Have you observed other filters of similar construction?

A. Yes, I have frequently observed the Warren filter, but did not place them myself.

Q. Have you any data or have you made any observations upon which you could approximate the life of a Warren filter?

A. There is hardly any way to get at that accurately. I stated in answer to Gen. Pickle's question that I thought from 20 to 25 years would be the average life.

Q. Mr. Wingfield, what would you say about the life of the boilers and connections for the pumping engines up at the filter station?

A. About 15 years for boilers and connections.

Q. What would you say would be the life of that intake tower?

A. The masonry, which is the largest item of construction would be practically indestructible unless by some accident. I put that in the same category as the reservoir.

Q. What about the equipment?

A. The equipment would probably have to be renewed. I should put the life of that at 40 or 50 years. It is rather indefinite of course.

Q. Now Mr. Wingfield, suppose you take the cost of replacing the intake equipment, including the tower and connections as fixed by Messrs. Nixon and Brown at $8514.00. Assume that on the 31st March, 1901, the tower had been built and in operation for 6 months, what depreciation would you allow?

A. None.

Q. Now from $8514.00, please take $7200.00 and see what per cent. of depreciation that fixes, these being the amounts allowed by Messrs. Brown and Nixon as replacement value and comparative value.

A. 15%.

Q. So they have depreciated, the intake and equipment is 15% for six months on that hypothesis?

A. Yes.

3354 Q. Now Mr. Wingfield, is it fair in adopting a reasonable basis for comparison to lump the intake tower and this equipment together for purposes of depreciation?

A. No it is not for the reason that some portions of it are not subject to depreciation at all except by accident.

Q. Treating the intake tower as practically indestructable itself and not subject to depreciation, and the equipment as amounting to one-third of the whole of the replacement value fixed by Messrs. Brown and Nixon, to wit; one-third of $8514.00, what would have been the depreciation according to their figures in the destructible parts of the tower in that 6 months?

A. 45%.

Q. If in making concrete you used cheap cement, will the sections in which it is to be made be larger or smaller and the bulk of it larger or smaller than if you used a better grade of cement?

A. A high priced cement would cost more to mix and lay; that has been my experience as between Portland and natural cement. As far as the bulk is concerned, I do not believe that I could answer the question as I have never actually measured the two and compared them.

Q. Which requires the more labor if you know?

A. The higher priced cement; at least that has been my individual experience with it.

Q. You have said something about following your own judgement exclusively in regard to certain items of your replacement valuation and accepting the statements in the paper furnished you by Mr. Kimball as to others. Please indicate a little more definitely the items as to which you followed on that paper?

A. It was in the floors, roofs, hardware and nails, windows and doors at the pumping station and the same items in the filter station and the intake tower and equipment.

3355 Q. As to the others I understand you made measurements?

A. Yes, and as to these items that I copied, I made a personal examination and checked each one on the list.

Q. From your inspection of the plant of the Knoxville water company, what is its general condition, good or bad?

A. It is good.

Q. Looking to the estimates and statements made — Messrs. Nixon and Brown, if the repl-cement value of this plant, or the cost of replacing it upon their plan, was on the 31st. of March, 1901. $379,000.00 was there, as a fact, an actual difference in value between such replacement and the existing plant of $135,000.00 or $140,000.00?

A. In my opinion there was not.

Q. Upon the question of purchasing pipe, you have stated in regard to certain pipe purchases at Augusta and Knoxville. How much per ton would have been added to that price of $20.00 per ton in your judgement in the purchase of two thousand tons of pipe from 8 to 20 inches in size, if anything?

A. You mean at Knoxville?

Q. Yes.

A. That is my estimate at Knoxville.

Q. Now suppose there had been the same purchases of 3, 4, and 6 inch as in Knoxville?

A. It is probable that that price would have been increased from 75 cents to $1.00 per ton.

Q. On account of the smaller size of pipe?

A. Yes.

Q. Is Augusta on a river?

A. Yes.

Q. A navigable river?

A. Yes.

Q. Has it the benefit of water competition in freight rates?

A. Yes.

Q. Can cast iron pipe be shipped from Philadelphia to Augusta by water?

A. Yes.

Q. Is it so done?

A. Yes.

Q. What is the freight rate between Philadelphia and
3356 Augusta per ton of pipe by water?

A. I am not positive about it, but it is in the neighborhood of $3.00 by water.

Q. What is it from Chattanooga by rail?

A. $2.40.

Q. What, approximately is the distance from Philadelphia to Augusta by water?

A. In the neighborhood I think of 800 miles.

Q. How many railroads run into Augusta?

A. The Southern railway, Atlantic Coast Line, Georgia railroad, Charleston and Western Carolina.

Q. The Southern railway and the Atlantic Coast Line are rival systems, aren't they?

A. Yes.

Q. How for is it from Lynchburg to Augusta, approximately?

A. I would say about 500 miles.

Q. Do you know what the freight rate is?

A. No I do not.

Q. The Glamorgan Company is situated at Lynchburg, isn't it?

A. Yes.

Q. That is not connected with any of the pipe combines, is it?

A. It is not connected with the United States people at all.

Q. What did you say about the United States Pipe Foundry Company at Chattanooga, the Glamorgan Company and The R. D. Wood and Company representing about all the pipe manufacturing companies of the country?

A. Yes.

Q. Did you say that was a fact?

A. Yes.

Q. You have been asked several questions about restoring brick paving under certain conditions. Can you make a replacement estimate at all fair to the water company without taking into account the cost of restoring brick pavement?

A. No, a plant could not be replaced after the brick pavements were in existence without taking up and removing the pavements.

Q. Now suppose you estimate the cost of replacement without taking into account the cost of restoring the brick pavements;
3357 that is to say make your estimate upon the basis of conditions existing at the time of original construction and suppose that the cost of the water pipe in original construction was $35.00 a ton if you are going to replace without restoring the brick pavement what price of ton of pipe would you allow upon this hypothesis?

A. Upon that hypothesis I would put the price, the pipes and other parts on the cost of it. If it was $35.00 I would put it at that price.

COMMISSIONER: In other words you mean if you are getting the construction cost for pavement that you must also for the pipe?

A. Yes.

Q. Now Mr. Wingfield, in regard to this question of services you

have said that under certain conditions the cost of the services should not enter into the cost of replacement?

A. Yes.

Q. Suppose that as a matter of fact the water company now owns these services, how are you going to replace the plant without replacing the services also?

A. If the water company owns the services, I would certainly treat them as I have the other tangible property in making a replacement value.

Q. What is the cost of digging, back-filling trenches for pipe at Augusta as compared with the same thing at Knoxville; I don't mean the exact figures?

A. The cost at Augusta would, in all probability be less than in Knoxville on account of the difference in the character of soil, that in Augusta being soft and easily handled while Knoxville has clay in most parts.

Q. Is the painting of a stand-pipe a matter of any importance?

A. Yes a great deal; it has a direct bearing upon its life.

Q. Assuming a stand-pipe to be painted whenever required
3358 and thoroughly cared for in that respect, what do I understand you to say its life ought to be?

A. 25 or 30 years, I think I said.

Recross-examination by G. W. PICKLE:

Q. What thickness do you make your plaster upon which you calculate the cost in answer to a question on cross examination?

A. One-half inch.

Q. One-half inch?

A. Yes sir.

Q. Now isn't it a fact Mr. Wingfield that 25 cents is the price that covers not only the plaster, but also the laths?

A. I cannot state positively, for I do not remember an instance in which I have let plastering separately; it has generally gone in with the price of the building and merely an incident to the cost.

Q. Now you have made some calculations as to depreciation or per cent. of depreciation given by Messrs. Nixon and Brown. I will ask you to look at the table of Mr. Wheeler's deposition that I now present to you, being the one inserted between pages 166 to 167, Vol. 1, and on final page of that statement of depreciation; now on that page doesn't Mr. Wheeler give you as depreciation up to March 31st 1901 on the reservoir what he estimates as $33,000, as $11,080.34 or a little over 33%?

A. It seems to show that.

Q. Now on the same page I will ask you if Mr. Wheeler doesn't give as depreciation on cast iron pipe alone the sum of $59,050.55?

A. The item marked "Distribution pipes &c." shows depreciation charged as stated.

Q. And on the same page does he not give as depreciation on meters estimated at a valuation of $8842.70 the sum of $1495.34?

A. Yes.

Q. And on filters estimated by him at $36,091.56 a depreciation of $7988.05?

A. Yes.

Q. And on the standpipe at the filter station a depreciation
3359 of $1353.82?

A. Yes.

Q. There are other amounts of depreciation given on the same page on other items are there not, and show for themselves?

A. Yes.

Q. Now Mr. Wingfield in estimating this matter of depreciation you look not only to the time a piece of machinery or property would last, but in cases of this character, you also look to the fact that such machinery becomes antiquated or outgrown, do you not, in ascertaining the depreciation?

A. Yes, that fact has to be taken into consideration.

Q. And also the fact that it may become useless or abandoned for water purposes?

A. Yes.

Q. All of those considerations are proper in looking to the depreciation of a plant?

A. Yes.

Q. Now assuming that the intake tower has been located at a point where the sewer from a large district of the city is emptied into the river just above where it takes the water in, and that is regarded by the people of the city and the physicians of the city as a menace to the health of the city, would not that fact be looked to as going to depreciation of the value of that intake tower?

Objected to by Counsel for complainant.

COMMISSIONER: I don't see that they are the slightest akin to each other; I don't think that that affects depreciation; but the witness may answer if he likes.

A. I don't know anything about the conditions, but on the supposition as stated by you that the plant would be moved, that would have to be taken into consideration in fixing a final value of the present construction. If it is certain that it has to be moved the total would come out, because there are only small portions of it which would be saved.

Q. In other words, if the location and situation, from whatever cause, of the intake tower is such as to make it reasonably doubtful whether pure or impure water is afforded the people of the
3360 city, it ought to be removed and abandoned, oughtn't it?

Mr. CALDWELL: We except to any inquiry into the question of the contamination of the water supply.

COMMISSIONER: General, that is purely a legal question.

Q. Mr. Wingfield, you know Gay street out here, don't you?

A. Yes.

Q. What size pipe should be used in the proper construction of a plant in the city of Knoxville on that street?

Mr. CALDWELL: We object to the question because if admissible at all it is evidence in chief for the city and not the water company.
Over-ruled.

A. That would depend entirely on the size of the pipes in the adjacent territory or in the cross streets. It frequently occurs that very small mains are used in the business streets, the large mains being brought across at periods and tied onto them and the fire protection in most instances coming off the larger pipe.

Q. Well now you know the row of buildings along Gay Street, do you?

A. Yes.

Q. Well now State Street runs parallel with it; what size pipes would you put on that street?

A. I couldn't answer that question unless I had the map of the city and figure over a proper distribution system. You cannot pick out the size pipe that should go on any one street without adjusting it to surrounding conditions.

Q. So you are not willing to state that?

A. No, for the reason that different conditions would make necessary different sizes of pipe.

Q. If you have not done so and you know how the fact is, will you state the distance from Lynchburg to Knoxville?

A. About 347 miles.

Q. Now Mr. Wingfield, you state that you do not encounter
3361 rock and some other things in excavation at Augusta that might be enceuntered in such work in Knoxville. You do some times encounter something in the nature of quick-sand there that is not encountered at Knoxville?

A. Not to the depth that you would ordinarily lay cast iron pipe. We do in our sewers sometimes encounter very bad places.

Q. Well you do strike them sometimes in laying pipe?

A. No, the pipe is never put deep enough to reach that strata.

Q. How deep do you put your pipe?

A. 3 feet covered.

Redirect examination by Mr. CALDWELL:

Q. Mr. Wingfield, I wish you would look at the comparative value of old and new plants as of March 31, 1901, in the deposition of C. S. Brown and see if you can find in it any indication that that comparison is not made upon the actual plant as it now exists, and if you see any intimation that allowance is made on account of anti-quated or out-grown portions of this plant?

Mr. PICKLE: I submit that his opinion on the deposition unless he reads the whole of it is not a matter for objection.
Over-ruled.

A. I cannot tell except that he has made deduction on almost every item.

EXHIBITS NOT SUITABLE FOR MICRO-FILMING

Q. The items opposite each column are the same, are they not?
A. Yes.
Q. Now Mr. Wingfield, if we are to be held to put a larger pipe in Gay Street are we not entitled to additional construction cost?
A. Yes.
Q. And we would also be entitled to a larger maintenance account?
A. Yes.

Adjourned until 2:00 o'clock p. m.

(Here follows diagram marked p. 3362.)

3363 THURSDAY, *January* 14*th*, 1904—2 o'clock p. m., 1904.

The further taking of depositions in this case resumed.

M. F. ROURKE, next witness called on behalf of the complainant, being duly sworn, testified as follows:—

Examination by Mr. CALDWELL:

Q. Mr. Rourke, when you were on the stand before, you were asked about charges made to Water consumers for putting in new service pipes?

A. Yes sir.

Q. Those pipes were run by you, so I understand, from the main to the curb line?

A. Yes sir, tapping the main and bringing connection inside the curb.

Q. But the water company extends them from the water main to the fence or property line, don't they?

A. Yes sir they do that now.

Q. And the water company also puts on the stop and waste?

A. They put on an extra or cut-off inside the fence.

Q. You were asked about the price of these connections in 1890 and 1891 before the water company commenced putting in the services itself. Now I will ask you if you have refreshed your recollection and are prepared to say whether or not you got $8.00 for tapping the main and running a ¾ inch service pipe to the curb line?

A. Yes sir we got $8.00 the last years, or previous to the water company taking hold of it. I wasn't fully sure of that the last time I was up here, but I found out from our books that we did.

3364 Cross-examination by G. W. PICKLE:

Q. When was that you got $8.00?

A. I don't know how long it has been—it was the last years any way it was previous to the water company taking it out of our hands.

Q. And prior to that time you got $5.00?

A. Originally when we took hold of it first in 1883 or 1884 we got $6.00 but at the time the water company took hold here we were getting $8.00 for ¾ inch connection.

Q. Can you fix that date?

A. No sir. It was in 1888, 1889, or 1890; it was when the present management took hold and they bought our present facilities from us, and they continued to do the street work themselves.

Q. The expense of putting them in was collected from water consumers, was it not?

A. Yes sir.

Q. What is the tapping fee, or what has been charged by the water company?

A. Right now?

Q. Yes, and for several years past?

A. Well I could not tell you what they charge right now; I don't know.

Q. What did they charge way back yonder?

A. I know what we charged, and I think they charged the same price; but we were inside the side-walk at the time we took the work away from the plumbers; we were getting $8.00 for ¾ inch and $6.00 for ½ inch.

Q. Does that include the tapping fee?

A. Yes sir it includes everything to where we leave off; that is inside the fence or at the fence line.

Q. Do you know how the meters were put in, whether they were put in at the expense of the water consumers?

3365 A. No I do not. I have put in some at the expense of water consumers but that was where it was a supplemental meter or a meter owned by the water company aside from the meter that the water company put on the same connection.

Q. That was a sort of a check meter?

A. Well where it was sub-rented, where there were two parties to deal with; like in the Deaderick Building—one for the general building and one for the barber shop.

Q. Now the amount of water consumed in the barber shop is read off of one meter and that of the Deaderick Building from another meter, isn't it?

A. Yes sir, it is taken from the general meter.

Q. Well I mean are those meters that the water company has in do you know whether they have been paid for by the water consumers?

A. Oh, I think so, yes sir; I don't know whether they have been recently but I know I paid for a meter myself at home.

Q. Some of those meters away back yonder, are you speaking of?

A. Well this was perhaps 6 years ago; at that time they were not putting in meters free.

Q. And they put one in for you and you paid for it, you say?

A. Yes sir, that was perhaps 6 or 7 years ago.

Q. Do you know of them putting in meters for others?

A. No sir, I don't know how that is, but the water company put this one in for me.

Q. And you paid them for it?

A. Yes sir, I paid them for it.

Mr. CALDWELL: The water company doesn't charge you any meter rent, does it?

A. No sir.

Q. Nor the meter doesn't belong to them either, does it?

A. Oh no.

Mr. CALDWELL: Of course it doesn't; we never made the slightest claim for such

3366 Redirect examination by Mr. CALDWELL:

Q. You say you run these services to the curb and that the water company runs them across the pavement into the yard and puts on stop and waste pipe?

A. Yes sir.

Q. And I believe you said runningg across the curb and running into the yard was worth how much, $1.50?
A. Yes sir, it is worth $1.50.

And further deponent saith not.

——— ———.

3367 CHARLES DUCLOUX recalled, next witness called on behalf of the complainant.

Examination by Mr. CALDWELL:

Q. When you were on the stand formerly Mr. Ducloux, you were asked to file a statement from the books of the Knoxville Brick Company covering a period from 1889 to June, 1898, showing all purchases of brick made by the Knoxville Water Company, and as the deposition now reads to Wheeler and Parks and William Wheeler, meaning purchases made by the Knoxville Water Company by Wheeler and Parks and William Wheeler, and also credits showing payments for same as the same appears upon the books of the Knoxville Brick Company. You furnished a statement beginning on the 7th of July, 1894, and I have asked you to examine the records of the Knoxville Brick Company and say whether or not there were any sales of bricks by your company to the Knoxville Water Company, Wheeler and Parks, or William Wheeler prior to July 7th, 1894?

A. Yes sir I found out this morning that there had been sales made prior to that date, and I have a statement here which is correct. The reason this statement was not included in my former statements was that I had nothing whatever to do with those brick sold before July 7th. They were sold from our city yard on Jacksboro Street, and they kept a set of books, with which I, as bookkeeper of the Knoxville Brick Company had nothing whatever to do. The books that I was in charge of showed that we sold to Wheeler and Parks, William Wheeler and the Knoxville Water Company a certain number of brick, which was included in that report, which is true up to the time I left. This additional report is taken from the books of brick sold at the city yard, kept by J. M. Young who was the men in charge of the city yard. I knew nothing whatever of these brick when I made my former statement.

Q. Please read the whole statement to the stenographer.

3368 A. The statement is as follows:

"Bricks Purchased by Wheeler and Parks of the Knoxville Brick Company in 1894 and Prior to July 7th.

1894.					
Feb.	14.	To 10,000 hard brick at.....	$6.00		$60.00
M'ch	18.	" 15,000 Vitrified Brick	12.00	$180.00	
M'ch	31.	" 68,500 hard brick	6.00	411.00	
					591.00
Apr.	23.	" 1,000 granite at.....	25.00	25.00	
"	24.	" 10,520 vitrified stretchers at	12.00	126.24	
		" 1,655 " headers.....	15.00	24.83	

Apr.	30.	" 2,000 vitrified headers.....	15.00	30.00	
		" 33,400 " stretchers at	12.00	480.00	
		" 200 " octagons.....	25.00	5.00	
		" 43,600 hard brick.....	6.00	261.60	
					873.47
May	2.	16 octagon brick at.....	25.00	.40	
"	23.	2,000 granite brick.....	25.00	50.00	
"	31.	68,100 hard brick at.....	6.00	408.60	
		3,613 vitrified headers at.....	15.00	54.20	
		48,825 vitrified stretchers at	12.00	585.90	
					1,099.10
June	30.	16,200 hard brick at.....	6.00	97.20	
		1,500 vitrified headers at.....	15.00	22.50	
		20,000 vitrified stretchers at	12.00	240.00	
					359.70
		Total.....			$2,983.27

Q. These brick were all purchased in 1894 and before July 7th of that year?

A. According to Mr. Young's books, yes sir. If you will allow me to explain why those brick don't appear on the books of the Knoxville Brick Company. Mr. Young sold them, and every month he turned in the profits to the Knoxville Brick Company, and
3369 those profits appear on the books, but those details don't appear on the books whatever, but I found those items there on the books as kept by Mr. Young.

Cross-examination by Mr. PICKLE:

Q. Did you examine to see whether the other side of the account was on the books or not?

A. No sir I did not have his Ledger; I only had his day book in which he entered the bricks furnished and the price and the date and I tracked everything and went over it, and this statement is correct.

Q. You don't know whether they were paid for or not?

A. No sir.

Q. Or whether they were paid for at that price or not?

A. I cannot tell you; Mr. Young could probably tell you that.

Q. Is Mr. Young alive?

A. Yes sir he is still in charge of the brick yard.

Q. You know nothing absolutely about the correctness of that statement; you simply found it on the books kept by Mr. Young?

A. Yes sir.

Redirect examination:

Q. You have been asked about these books; whose books were they you quote this last statement from?

A. It was an old book kept by Joe M. Young kept for the Knoxville Brick Company.

Q. It was one kept at the brick yard and not at the office where you stay?
A. Yes sir.
Q. You never saw the book until this morning, did you?
A. No sir not until this morning.
COMMISSIONER: You went to the place where this book is kept and there found it and made up the statement from your books?
A. Yes sir, at the Knoxville Brick Company's office in the Empire Building. They may have the old Ledger there; I never
3370 asked them.

——— ———.

JOHN G. FOGARTY, next witness called on behalf of the complainant, being first duly sworn, testified as follows:

Examination by Mr. CALDWELL:

Q. Mr. Fogarty, please state how old you are and where do you live.
A. I am thirty seven years old; I was born in 1866.
Q. Do you live in Knoxville?
A. Yes sir.
Q. What is your occupation?
A. A brick layer.
Q. How long have you been a brick layer?
A. Since the 2nd day of April, 1882. Twenty-two years nearly—that is when I commenced to learn the trade and I have been at it ever since.
Q. Are you still engaged in laying bricks?
A. Yes sir.
Q. Have you ever acted as foreman in having brick work done?
A. Yes sir.
COMMISSIONER: Have you done any contracting?
A. Yes sir.
Q. And you have done the actual labor too?
A. Yes sir.

Mr. CALDWELL:

Q. Did you ever do any work in laying bricks for the Knoxville Water Company?
A. Yes sir.
Q. Please state what you did and give the date when you began, the date of each job as near as you can.
A. Well I am in no position to get the data; probably you have it on the records. I was simply a journeyman; I was the first man that commenced work on the hill for the new improvements
3371 on the filter house; I think that was in 1893 or 1894. I did not put down the dates. I went to work for the Knoxville Water Company—I was one of the first hands employed on the Hill and I worked through that job until it was completed, and then I went down to the river and worked through that job all around in the building of additions to the pumping station, and I went back

later when they did some improvements in lining the old pit with enamel brick and worked on that job until it was completed.

Q. When you were working at the building of the filter station on reservoir hill what were you paid for a day's labor?

A. $3.50.

Q. What if you know were other brick layers paid?

A. As far as I know from talk among ourselves, we were all getting the same price except the foreman who was brought from Boston and of course we did not ask him and don't know what he got, but all the journeymen, as was the custom in Knoxville all got the same.

Q. The other brick layers on that job were union men, were they?

A. Yes sir.

Q. When you went down to the pump station at the river, what did you get a day for your work?

A. I got $3.50. I worked a short while until Mr. Robinson, the foreman took sick, and then they put me in as foreman and gave me $4.00; but as a journeyman I got $3.50.

Q. Did the other journeymen get the same price?

A. Yes sir that is what they stated to me, and when I put in their time, that is what I gave it in at.

Q. When you were lining the engine pit with enamel brick, the last work you did down there at the pump station, what did you get a day?

A. I think, I am not positive, I wasn't keeping time at the time, but I think I got $4.05 as near as I can remember. In other words the union rate was 45 cents an hour, as near as I can remember.

3372 Of course I can prove that by going back to the books of the company. We didn't keep any data of it as we were settled with every Saturday night but I am positive it was 45 cents an hour and 9 hours a day to the best of my recollection.

Q. Now in regard to the brick laid by you in working for the Knoxville Water Company, how many common bricks laid in lime mortar could a brick layer lay in one day?

A. Under the instructions we had to lay those brick I would say 800 a day.

COMMISSIONER: Under what, the union rules?

A. No sir a certain way the foreman required us to lay them.

Q. Now you may answer what number of these brick in lime mortar could be laid in the ordinary building work about the town here in a day?

A. 1500 is always the basis I figured on in my contract to carry out the specifications of the architects.

Q. Now going back to the laying of brick in the manner you were required to lay them for the water company, and not as they were ordinarily laid about town, how many common brick in cement could a brick layer lay in one day?

A. I would say 650 or 700 or something like that.

Q. How many vitrified brick in lime did he lay in one day there?

A. I would *asy* 400.

Q. And how *am*ny vitrified brick in cement?

A. Well I would put that as common brick in cement, the work

we did there was heavier walls and we could get them in faster as we got to the center, but to take the outsides we would get in about 700.

Q. Now when you went to laying the enamel brick in lining the engine pit, how *am*ny would you lay in a day?

A. I would say from 200 to 250. The work there was such that I had never seen before nor since nor never heard of before
3373 on account of the machinery being in the pit and we had to to work while the machinery was running, and had to lay one row of brick around at a time and that is what made it so slow.

Q. Mr. Fogarty, as you laid those brick one layer at a time, did you use any grout with them?

A. Yes sir.

Q. Explain how you applied the grout and built up that enamel wall?

A. That is why the slowness came in. There was a pit something like as large as this room, not quite, and the two ends were semi-circular, and every brick had to be laid with your eye, there was *bo* line there, and the wall had to be skinned down, and it left the wall ragged, and a row of brick was laid all around, and I had to put grout in here to make *ti* adhere to the old wall—had to take a funnel and skid and put it in all around in different places, and that is why I could not lay but one course at a time, because if I did so much water would be in ther- that it would wash the whole bulk down, and I took it one course at a time to keep it from setting.

Q. Was there any trouble in cutting and preparing the brick to fit in the wall?

A. There was a great deal of trouble in cutting the arch brick. I cannot say it was trouble except it consumed lots of time. In making the tunnel arch I would say one end was 4 feet and the other end about 6 or 8 feet wide, don't remember now exactly what it was, I had to cut every brick in that arch from the small end to the large end to make them all come together in the center, and as those brick were enameled face, you had to be very careful to keep from chipping the enamel, and I suppose I was in the yard 8 days cutting the brick before I laid one, preparing them for the arch, and I
3374 spoiled quite a number in doing so; then after I laid those brick in Portland cement, for strength I had to wait until they set, and then had to scratch all the joints out and then go back over the job and repoint it to make it white like these brick in order to make it correspond with the job.

Q. Did you see the old pit before it was lined up?

A. Yes sir.

Q. Which was the lighter, the old pit or the new pit after it was lined with the enameled brick?

A. Why the new pit.

Q. Could the employees of the water company work in the bottom of the old pit even in day light without some artificial light to help them?

A. I could not say whether they could or not—they had electric

lights—the lights were in there and in use, but they might possible have done the work without them.

Q. Were they using the electric lights in day light?

A. Yes sir I was myself.

Q. But after the enamel lining was put in were the electric lights necessary?

A. I can't say; I haven't been up there since, but the last day I finished it it looked very bright and looked as if they wouldn't need any lights.

Q. Looking to the work that you did generally for the water company, how did the quality of the work compare with other brick work done about Knoxville as you know it?

A. Well the quality of the same grade of brick, the work is much more neat than the average run of work in the city. There were instructions that we had to do it as neat as we could, and I have never had a job in the city that was like it.

Q. How about its being good and durable as well as neat?

A. Well in my experience I know of no job anywhere that
3375 is better; it is as good a job as I ever worked on in my life for durability.

Q. Was cement or labor spared in any way to cheapen the work at the expense of durability?

A. No sir not that I know of. When I had charge I certainly fulfilled the orders that were given to me; I had requirements of mixtures from the company to fulfill and I carried them out to the best of my ability.

Q. When did you first do work in Knoxville?

A. In the Spring of 1889.

Q. Was the brick layer's union in existence then?

A. No sir.

Q. What were you getting for a day's labor in 1889?

A. $3.50—now I worked a short while for myself and on a special job of good brick I got $4.00 but $3.50 was the general average in town.

Q. Where was it you did this $4.00 work?

A. It was down here on the Payne Building that fell down; that was built with some Baltimore brick and a block mortar job and they picked the men and paid them a little more. Afterwards there was an accident and the building collapsed. That building has been built twice however in the same spot.

Q. Can you tell me what you got in the year 1890 for brick work?

A. $4.00.

Q. Can you give me the same information fo*r* the years from 1891 on up to 1902?

A. It was 45 cents an hour in 1902. The union was in existence and we did not work by the day but 45 cents an hour; every minute we lost we got docked, and every minute we worked we got pay for it.

Q. How was it in the year 1891?

A. In 1891 the year was mixed; the first part of the year we got

$4.00 a day and the latter part of the year 45 cents an
3376 hour.

Q. How about 1892?

A. 1892 it was 45 cents an hour.

Q. Now give it from that year on down?

A. In 1893, $3.50 for 9 hours; in 1894 $3.50 for 9 hours; in 1895 $3.50 for 9 hours; in 1896 and 1897 I am not able to state for I wasn't working here at that time; I was at work at other places.

Q. Well take it up after you returned?

A. I came back in 1898 and got 30 cents an hour for 9 hours; in 1899 35 cents an hour for 9 hours; in 1900 45 cents an hour for 9 hours; in 1901 and 1902 it was 45 cents an hour for 9 hours and in 1903 it is 50 for 9 hours and up to the present time in 1904.

Q. Are you still a member of the brick layers' union?

A. Yes sir.

Q. Do you hold any position in the union?

A. Yes sir I am Financial Secretary of it.

Cross-examination by Mr. PICKLE:

Q. Have you done any other work for the Knoxville Water Company except that you have already stated?

A. That is all the brick work with the exception of some very small work while I was in their employ. They sent me out on the streets about their water mains—their water gates they bricked them up so the dirt couldn't get in on them.

COMMISSIONER: You were working by day's wages?

A. Yes sir.

Q. You have been frequently in their employ?

A. Yes sir; I can say that of all the work they have had since their improvement began, they have always given me employment in my line; I have also set boilers for them since.

Q. Mr. Fogarty, you have the reputation and in fact you are one of the most expert brick layers in Knoxville, are you not?

A. Well I always seemed to get on good work, and I think I do about as well as any of them.

3377 Q. To what extent have you been a contractor on your own account?

A. Well, with another brick layer, we built Mr. Harth's house on Cumberland street and built a little brick on the corner of Central Avenue and Depot Street for Pat Sullivan.

Q. When did you do this contracting work?

A. Well, sir, I cannot tell you; it has been 5 or 6 years on those two buildings, and I have contracted numerously on what we call sub-contracting in building chimneys in which the carpenter would take the general work; on that kind of work, I have built hundreds of them.

Q. You would take them at so much per thousand?

A. So much per thousand and he would furnish the material.

Q. He would furnish the material?

A. Yes, sir, for on these hill-sides in Knoxville, work is done by the thousand and measured afterwards, because you don't know the

heights you are coming to. There is always more or less extras on every house built in Knoxville.

Q. The prices you have given have been the brick layers' union prices that you have read from the books?

A. Yes, sir.

Q. Well, now during nearly all of those years there has been a lot of brick layers that were not in the union?

A. Yes, sir, there has been sometimes more than others. There is no way to keep up with them as you don't know who they are or where they come from.

Q. It was not until the latter part of 1901 that the brick layers' union got that matter well in hand here?

A. Well that is right, but there was a union here in 1900, but it was in the early part of 1901 when it went into effect.

Q. It was late in 1901 wasn't it?

A. It was when Science Hall on University Hill was being built that it went into effect—that is the way I remember it, but I had no occasion to put it down. That work was started in the winter and the following May was when the union rules went into effect with
3378 regard to certain hours and prices. There was a union before that trying to organize—endeavoring to get enough members to enforce it.

Q. But prior to that time you hadn't been successful in doing so?

A. Well we had never made any attempt.

Q. When the union wasn't able to control prices, the price that a brick mason received depended largely on his skill before that?

A. Yes, sir, it was considered at the time that I was getting $3.50 a day at first, I don't know what the others were getting then, but the men I was working for was Reps Jones, and what he was paying the others I don't know, except from hear-say—he had employed some 30 or 40, but from hear-say, when I asked him for work and what he was paying he said $3.50.

Q. What job was that on?

A. There were two jobs going on at once; it was the McTeer, Payne, Burger and Hood building, and the Payne Building, the one that collapsed.

Q. Did you work on the court-house?

A. No, sir, that was completed when I came to the city.

Q. Did you work on the Deaderick Building?

A. The Deaderick Building was just completed, or rather when I got here they were putting the roof on.

Q. Did you work on the Imperial Hotel?

A. No, sir, that is an old building; I was here when they put that story on it.

Q. But you did not work on that?

A. No, sir.

Q. There was no very great number of those enamel brick laid over there, was there?

A. No, sir, probably 8,000 or 9,000; I don't know just how many. That is something I didn't figure on or didn't have any occasion to keep a record of.

Q. In constructing the plant originally and before the machinery had been put in as would have been done in constructing the
3379 original, much of the difficulties you encountered there wouldn't have existed?

A. In building it new?

Q. Yes, sir?

A. No, it wouldn't have been near the job; I could have built the whole job while I was lining the pit.

Q. If you had been building the whole job instead of replacing it?

A. Yes, sir; you know there was machinery below, and we were so careful not to hurt anything; the machinery had to be in working order ready for any emergency, and dropping a brick might get the city out of water, and we had instructions to be very careful.

Q. You said that work wasn't supervised by a Knoxville architect?

A. No, sir, they had a civil engineer there, that was there on duty all the time.

Q. Where was he from?

A. He said he was from Boston. I never had seen him before and in our conversation he told me he was from Boston. There were three different engineers; at the pit the engineer's name was Charlie Bowker.

Q. You say there were three different engineers?

A. Well, at three different times.

Q. And all from Boston?

A. Yes, sir.

Q. You say you never did work with such instructions as you received for the execution of this work?

A. Not in Knoxville; I have at other cities.

Redirect examination by Mr. CALDWELL:

Q. Mr. Fogarty, I think you and General Pickle have got the date of organiation of the Brick-layers' Union wrong; was it in 1891 or 1901?

A. I stated that the Union was organized in 1900, but that we didn't try to enforce any rules or regulations until 1901.

Q. Now do you mean 1901 or 1891?

A. Oh, 1891 is what I meant; that is what I meant of
3380 course. It was two years after I came here; I came in 1889.

COMMISSIONER: But it was 1901 before they got control, so to speak, of the business of the town?

A. It was 1901, yes, sir.

Q. It was 10 years after that they had control of the situation?

A. Yes, sir.

Q. Wasn't there a long period in which there was few non-union masons here?

A. I think it was after the fire, the time I wasn't here.

Q. Now you say it got control about the time Science Hall was being built at the University?

A. Yes, sir.

Q. Now that was built in 1890 and 1891 wasn't it?

A. Yes, sir, and the reason I remember it so well, the bell rang,

which we went to work by, and the boss challenged every man that had worked the day before, and he says I want to talk to you this morning , and about one-half the men he kept and the other half he released—that was on account of the rates and prices.

Q. Do you know Mr. David Getaz?

A. Yes, sir.

Q. Did you ever do brick-work for him?

A. Yes, sir.

Q. Where and in what year?

A. The first work was three or four years ago; it was on R. Z. Roberts' house in West Knoxville; I think four years ago if I am not mistaken.

Q. What did you get for that work?

A. Forty-five cents an hour.

Q. And how many hours?

A. Nine; that is all the work I ever did for him in the city of Knoxville; I have done work for him in several states since.

Q. Did you ever do any work for Stephen Munding?

A. No, sir.

Q. Do you know of any work of importance that Munding ever did about town—brick work?

A. No, sir, I cannot recall any; I have worked on jobs where Mr. Munding was doing the general contract in two or three instances, but Mr. George Ray was the foreman over me, and I don't know who he was doing the work for, but Mr. Munding was doing the carpenter work.

3381 Q. Did you get union prices for that work?

A. I did, yes, sir.

Q. Do you know of any large job that Getaz has done around here in the last four or five years?

A. I don't know of any he has done around here in the last four or five years.

Q. What is the last large job you heard of him doing around here?

A. I heard he had an interest in the new City Hall, but whether he had or not, I don't know; that was after the big fire on Gay street and when I was away from here.

Q. You don't know what prices were paid for the Market Hall building, do you?

A. Twenty-five cents an hour is what I heard; I wasn't here at the time.

Q. That was while you were gone?

A. Yes, sir.

Recross-examination by Mr. PICKLE:

Q. Do you know whether or not that was done by the brick-layers' union?

A. There was no union in existence at that time.

Q. When was that work done—the new City Hall—1897?

A. I think it was in 1897.

Q. Now the brick-layers' union was not in existence here then?

A. No, sir, the brick-layers' union, when they can't get the nine

hour system, work strictly by themselves, and as we belong to the International Union, they require us to make up and send back all the paraphernalia, and at that time the paraphernalia was sent back, and there was no brick-layers' union in Knoxville at the time that building was built; it was when the market house was built that it wasn't in effect.

Q. Then after that they got the paraphernalia back?

A. Yes, sir.

Q. Then you had a long tussle with the men?

A. No, sir, it was started without any delay.

Q. But in the meantime you had trouble with outside men or contractors, didn't you?

3382 A. I couldn't say we had trouble; they didn't want any union, and we did.

Q. Now during those years wasn't there a great number of outside men that were employed at prices cheaper than your union prices?

A. I couldn't say that under oath for I was not here.

Q. But after that?

A. There was some men here, yes, sir, but no more so than today.

Q. But your union is better organized today than it has been for some time?

A. No it is no better organized; we have just as much opposition as ever today.

Q. Now you say you have worked for Mr. Getaz; Mr. Getaz is a very old contractor here, isn't he?

A. He was in business when I came here.

Q. Hasn't he done some of the most important brick work jobs in Knoxville such as the court house and Deaderick Building?

A. Probably so; they were built when I came here.

Q. And you worked for him; were you foreman?

A. I know this much about the court house; Reps Jones did the brick work, but who did the general work I don't know.

Q. But if he did the brick work he did it under Mr. Getaz?

A. Probably so.

Q. What were you doing for Mr. Getaz when you were working for him?

A. Mr. Getaz had a general construction foreman, and this foreman hired me, and I was subject to his orders, but Mr. Getaz gave him orders.

Q. You were a sort of foreman for him?

A. No, sir, as I understood this general foreman that Getaz had hired me to work by the day in the interest of Mr. Getaz, but I got my orders from the foreman, but Mr. Getaz was really the general superintendent of the whole concern.

3383 Q. What job was that on?

A. On Mr. R. Z. Roberts' house in West Knoxville.

Q. How long were you at work on it?

A. About a week; something like that.

Q. Did Mr. Getaz have anybody on that work except members of the brick layer's union?

A. The men that laid the brick were members of the brick layers' union. We don't work with any body else.

Q. How many of you worked on it?

A. Only two when I was there. You know we went ahead and put in the foundation and then there was a delay and when we started two men were employed.

Q. What was the price or work you did for Mr. Getaz there?

A. Topping out chimneys and building the corners. You see that house is not a frame but a stucco house and on every corner of it it has a brick tier.

Q. It is rather fancy work?

A. Yes sir, as an ornament.

Q. And you worked about a week at it, you and another man?

A. Yes sir. Then from that on I worked extensively but not in Knoxville. I have been in Indiana, Pennsylvania, Georgia and Texas for him. I was in Texas last year for him.

Q. And you served in capacity of foreman?

A. Yes sir that is where he got acquainted with me was on that work.

Redirect examination:

Q. You have kept up pretty well with the buildings of the Knoxville Water Company, haven't you?

A. I think I know pretty much about them unless it is something that has been done lately.

Q. Did the Knoxville Water Company have any brick work done during those two cheap years you mention?

3384 A. If they did I don't know it.

Q. Well you know what was there before 1897 and you know what is there now?

A. Yes sir.

——— ———.

The further taking of depositions was adjourned until Friday morning January 15th, 1904, at 10 o'clock A. M.

3385 FRIDAY, *January 15th*, 1904—10 o'clock a. m.

The further taking of depositions was resumed pursuant to adjournment.

J. L. LUDLOW recalled on behalf of complainant.

Examination by J. W. CALDWELL:

Q. Mr. Ludlow, when you testified formerly in this case, you submitted a Replacement valuation of this Water plant as of date September 30th 1902. Have you prepared yourself to submit a Replacement valuation to the 31st of March 1901?

A. I have.

Q. I hand you a paper headed "Knoxville Water Works. Replacement Value March 31st 1901 Estimated by Nisbet Wingfield and J. L. Ludlow, being different in percentages and in results from

the replacement valuation formerly submitted by you, and ask you if said paper is the Replacement valuation that you wish to submit now?

A. It is.

Mr. PICKLE: We except to this evidence as not being in rebuttal, but in chief, no evidence as to replacement value on the 31st of March 1901 having been offered by the plaintiff before closing his evidence in chief:

Second. That if admitted at all, it cannot be admitted for any purpose of evidence in chief, or used as evidence in chief, but simply as a matter of rebuttal to the evidence offered by the defense.

COMMISSIONER: I will admit the testimony and will consider the effect of the exception in my findings in the case.

3386 Cross-examination by G. W. PICKLE:

Q. Mr. Ludlow, when did you come to Knoxville for the purpose of making up this statement of Replacement cost as of the 31st of March 1901, and how long did you remain, and with whom were you associated in your work while here?

A. I reached here on the morning or the night of December 13th, or early Monday morning, and remained here until Saturday morning of the same week. In the work of making inquiries and the estimate, I was associated with Mr. Nisbet Wingfield of Augusta Georgia.

Q. What time did Mr. Wingfield arrive and join you?

A. I think on the afternoon of the 14th, or maybe about noon.

Q. Were you and he furnished by the Water Company and itemized statement of the several parts of this plant, with the valuations opposite the same, before beginning your investigations?

A. I think not. We were furnished with a memoranda of the different quantities and length of pipe lines, the number of hydrants and appurtenances of that character, but I don't think they gave us any prices at the time; I am quite certain they did not.

Q. When was that statement furnished you?

A. I am not certain whether it was furnished me upon arriving here or whether some time previously.

Q. Have you the statement before you now?

A. I don't think I have sir.

Q. Did each of you have a statement, or only one?

A. I think we just had the one. I understood that those quantities were all agreed upon. I did not charge my mind with a recollection of that particular thing? I had been advised previous to my coming here something as to the quantities of March 31, 1901, but I am not certain that it was identical with the data furnished when I came here. As I said, I didn't charge my recollection with anything along that line.

3387 Q. You have not the paper that was furnished and Mr. Wingfield hasn't it, has he?

A. I don't know sir whether he has or not; I rather think he has though.

Q. Now I will ask you Mr. Ludlow, if it is not a fact that not

only the items were furnished you by that paper, but that the valuations were run out and that they aggregated $648,000.00 as shown on that paper that was furnished you and Mr. Wingfield?

A. I think not; I haven't the slightest recollection if it was. I never noticed the figures sufficiently to impress it upon my mind.

Q. Now isn't it a fact that you took and accepted the quantities almost without exception that were stated upon that paper that was furnished you about the values of the water company?

A. I recall now that we did have a paper showing values opposite certain quantities in different portions of the works, but it is not true that we took those values generally in making our estimate; in fact we considered them to a very limited extent.

Q. Well, may you not be mistaken about that?

A. I may be; I am not certain about it.

Q. If Mr. Wingfield has testified from that paper and showed that you accepted in the main those values, you are mistaken about it, aren't you?

A. Oh yes sir; what do you mean by in the main?

Q. Well almost entirely?

A. Well no sir I could not say that; we didn't accept them in the portions of the plant representing the most value and which could be readily determined by ourselves. We probably, and doubtless did do so with many of the minor items which were very difficult to determine their value independently and which really made but very little difference in the total valuation of the plant.

Q. Well now what did you do here on Monday of the
3388 week you came here to investigate?

A. Well on Monday I believe I spent a portion of the morning in the office of the water company; in the afternoon we walked over and looked at the river station and I think the High Service station as well.

Q. Well now what did you do on Tuesday?

A. On Tuesday, Mr. Wingfield and I began our investigations.

Q. What time in the day?

A. Some time after breakfast.

Q. Now wasn't it after dinner; didn't he get in here about dinner and didn't you take it up in the afternoon?

A. General, really I didn't consider those hours as being of such importance. I could not testify as to that for certain.

Q. What did you do on Tuesday?

A. We were working on the same thing.

Q. What specific work did you do on Tuesday, you and he?

A. I have no exact memoranda of that date, but I think the greater portion of the day we spent in taking measurements about the River station, possibly a portion of the time taking measurements at the High Service station and filter plant.

Q. Well what did you do on Wednesday?

A. Wednesday we were taking additional measurements or calculating or both perhaps; that is my recollection.

Q. And on Thursday what?

A. I think we were still calculating or estimating.

Q. Well on Friday the statement had been completed so that Mr. Wingfield was ready to go on the stand Friday morning if we had reached him?

A. Well he may have been; I am not certain about that sir.

Q. Did you keep memoranda of what you did on those several days?

A. My memoranda is simply that I was in Knoxville on those days.

Q. Did you keep any memoranda of the measurements taken by you?

A. Yes sir.

3389 Q. Where are they?

A. Well I haven't it in very good shape; I have it in rough notes.

Q. Who made the measurements?

A. Mr. Wingfield and myself and one or two gentlemen at the station whose names I do not recall—Mr. Durham was one, and some one else.

Q. Well what changes, if any, were made in the statement that you had agreed upon after you left here, and at whose instance were they made?

A. There were some few changes made at the suggestion of Mr. Wingfield after we left here, amounting in reductions, which I did not entirely agree to, but I think they were reasonable and probably correct.

Q. How much did they amount to?

A. I think they amounted to $5,000.00 or $6,000.00.

Q. Have you got the letter suggesting the reductions to be made?

A. Yes sir.

Q. From Mr. Wingfield?

A. Yes sir.

Q. Well that would show exactly what they were wouldn't it?

A. It would show the items, but does not show the amount.

Q. Did he send you the statement after he revised it?

A. Yes sir.

Q. As it appears here now?

A. Yes sir.

Q. You thought his reductions were rather putting it too low, didn't you?

A. Well in some instances; I think in the main they were correct. One matter was a reduction that I wasn't certain was justified. It was just a natural difference that any two persons will encounter in making an estimate, as it is a matter of judgement, but in this case not very important either in amount or character.

3390 Q. Well will you just file the letter in order to show the respect in which the estimate was to be reduced?

A. No sir, I haven't that letter you ask for. I haven't any letter which shows the net difference between the two estimates. All I have is a memoranda in a letter that contains some other matters which states the changes in those prices.

Q. Will you file that letter?

A. No sir, but I will read the portion of the letter which your question covers, because the letter contains other matters that are not covered by your question.

Q. Well what do the other matters relate to—to this case don't they?

Mr. CALDWELL: We object to making inquiry into personal letters.

Q. It relates to your estimate in this case don't it, and your work in making up this estimate, the whole letter?

The WITNESS: Did I understand the Court to say that I shall answer the question?

Mr. PICKLE: Let the Court see the letter so that he may judge whether it is proper to go into this case or not.

COMMISSIONER: It is one of those questions I couldn't say whether proper or not, and certainly if you can't put your fingure on what you want to ask him, I couldn't say that it ought to be put in.

A. I can answer the question you ask me very readily from that letter.

Mr. PICKLE: Well as it is written, I would rather the letter itself answer the question.

COMMISSIONER: In the first place I suppose that I have to take the responsibility of saying that there is nothing in this letter except the figures here which you can read off without submitting the
3391 letter.

Mr. PICKLE: Counsel for City asks for the production of the letter which the witness declines to produce, and the Court having read the letter rules as to what parts apply and refuses to compel the production of the other parts of the letter.

A. In answer to the question, I will read a portion of the letter covering the question, which is as follows: "Enclosed is copy of estimate I have filed with Knoxville Water Company. It is identical with the figures we made except cost of brick work and reservoir lining. The brick in lime I change to $12.00 instead of $13.00 in Rosendale $14.00 except in pit; and in Portland $17.00 except in pit and tunnel." Those constitutes the changes that were made.

Q. What did those changes amount to in the aggregate, Mr. Ludlow?

A. $9,499.86 it seems.

Q. What is the date of that letter?

A. January 7th, 1904.

Q. You did not see Mr. Wingfield after you parted here on Saturday of the week that you made the measurements?

A. I haven't seen him since, no sir.

Q. How often have you testified in water rates cases Mr. Ludlow, outside of this case?

A. If you will turn to my former deposition you will find that recorded.

Q. Well if you have stated it there I don't care for you to state it again.

A. Well it appears there sir.

Q. You testified in the Chattanooga case, didn't you?

A. I did.

Q. You appeared in that case as an expert on behalf of the city, did you?

A. I did, yes sir.

Q. Mr. Wingfield appeared in that case on behalf of the water company as an expert witness, did he?

3392 A. Well the records so show. I never met him in the case, but I think the record so shows.

Q. Your testimony in that case was taken in July and August, 1900 wasn't it, and your deposition filed in that case August 6th, 1900?

A. About that time, yes sir.

Q. In making up your estimate in the Chattanooga case, you had before you the estimate of replacement of the Chattanooga plant which had been previously made by Mr. Wingfield, hadn't you?

A. I had one made jointly by Mr. Wingfield and Mr. Hill—I am not certain whether it was a joint estimate or separate.

Q. And you made up your estimate of replacement quantities, prices &c. with that joint estimate of Mr. Wingfield and Mr. Hill before you?

A. I did; at least I had them to use as I wished.

Q. Your estimate of replacement in this case was in the neighborhood of $400000.00 less than that of Mr. Wingfield—I mean the cost, wasn't it?

A. It was considerably less; the record shows the difference; I don't recall it myself.

Q. Well it was about $400,000.00?

A. It was considerably less; I don't remember the figures.

Q. And it was about that amount of the cost or value of the plant fixed by the court, the court having followed substantially your replacement value?

A. I understand that to be the case, yes sir. I don't know that my estimates were followed, but I believe the result of the court's determination wasn't very far different from the result of my estimate.

Q. Your replacement of September 30, 1902 in this case, heretofore filed, was one upon different quantities and very much higher prices than those that prevailed in 1901, was it not?

A. In some respect- quantities were different and prices were quite different.

3393 Q. How were prices early in 1901, high or low?

A. They were quite low. It was a period of very quick and rapid fluctuations along then.

Q. You mean they rose very rapidly between that and September 30, 1902?

A. I mean during that period along in 1901 prices were very unstable and uncertain; they didn't remain at any fixed amount for any length of time, and during that time, or the time this estimate is dated, they reached the very lowest value they had been for a term of years, then they gradually rose until September 1902.

Q. You think that and March 31, 1901 was the lowest ebb of price?

A. Well it was for quite a period of time then and after that time two or three years.

Q. Mr. Ludlow, about how long does it require a competent engineer to disign and make up plans and specifications for a water plant, such as the one existing at Knoxville March 31, 1901?

A. Well it would take a good while to design and make up plans for such a plant as this one here, as it is quite a difficult plant.

Q. What do you mean by a "good while"; a month?

A. I couldn't say sir how long it would take me to do it if called upon.

Q. Well do you think a month would be a sufficient time?

A. I haven't much thought about it.

Q. About how long ought to be consumed in the proper and diligent construction of a plant of this size, Mr. Ludlow?

A. I don't believe that is a question upon which expert testimony can amount to much unless the terms are more specifically defined, and unless I should know more what you mean by the expression "proper and diligent construction." It depends upon the character of the construction, the conditions surrounding the work, weather conditions, the condition of the material market the condi-
3394 tions of the labor market, and what might be a reasonable time under the term of due diligence at one period might not be a reasonable time at another period.

Q. So you are not able to state either how long it would take to design the plant or how long it would take in the execution?

A. I shouldn't like to give any fixed time. I may have done so, but it is not a matter of any fixed time. If there was any special reason why I should give an opinion, I could do so, of course, but my opinion in this respect I don't value so very highly.

Q. Did you and Mr. Wingfield have any speci-l trouble in getting together in this case in your estimate?

A. We didn't have so very much trouble, no sir. We discussed various items thoroughly and the different items of cost, and our judgment and experience in such cases, we reached conclusions quite readily.

Q. Who dictated the statement that was made up of the replacement cost in this instance, you or Mr. Wingfield?

A. Neither of us. I wrote it out on a blank paper and turned that over to the stenographer to copy. We did it jointly; I did the writing. While I wrote it on sheets of paper for the stenographer, Mr. Wingfield made a dupliacte of it in his note book, so we both wrote it out together after we had made our calculations and it was in shape to put it together in proper form as an estimate.

Q. Well Mr. Ludlow, I notice that you have allowed uniformly upon the several items of construction 16% for engineering and contingencies. I will ask you how much in the aggregate on the whole work does this 16% amount to in dollars—how much of it you assign to engineering and how much to contingencies. The amount here in the aggregate is $80,467.73 which I think Mr. Wingfield gave?

A. To which I am willing to agree as correct.

Q. Now give the amount you assign to engineering and the
3395 amount you assign to contingencies?

A. In round figures $50,000.00 for contingencies and $30,000.00 for engineering and expenses.

Q. Now there is to be added to the $50,000.00 or a little more it is in fact for contingencies, the special contingecy of $2,000.00 for the reservoir in order to cover all contingencies?

A. Yes sir, reservoir bottom.

Q. And that would make for the whole plant something over $52,000.00 for contingencies?

A. That is correct sir.

Q. You used in the Chattanooga case, I see, 6% as the basis of allowance for engineering and contingencies upon all the items that you made any allowance for engineering and contingencies upon. Now I will ask you Mr. Ludlow, what would engineering and contingencies upon this plant amount to computed at 6%—give it in dollars—and how much of that 6% would be assigned to engineering and how much to contingencies? How much does it amount to at 6%?

A. I cannot give an answer to that question in the form you ask it, for the reason that were the value of this plant to be determined with an expectation of using, 6% to cover both engineering and contingencies, the values given to the separate items would be very materially changed from those given in the estimate which has been filed. Therefore 6% on the figures given would not represent a proper cost of engineering and contingencies in this plant. In other words if the 6% were to be taken, the figures other than those allowed in the percentage for engineering and contingencies would be very materially higher than those presented in the estimate.

Q. Well now, we understand that Mr. Ludlow, but I will ask you if in fact you did not in your estimate of replacement at Chattanooga
make a statement of this character at the end of each item
3396 of your reconstruction account "6% for engineering and contingencies" carrying out the amount and adding it in?

A. I believe I did, yes sir.

Q. Now if that basis of 6% for engineering and contingencies had been used in this case, the total amount for engineering and contingencies would have been $30,000.00 instead of $80,000.00 would it not?

A. No sir, not necessarily; I should have used different unit prices upon which that per cent. should be calculated.

Q. Assuming that you had used the same prices in your estimates of cost that you did use, and that 6% for engineering and contingencies, the allowance for engineering and contingencies would have been about $30,000.00 instead of $80,000.00 or about $50,000.00 less than the allowance you made.

A. That is simply a matter of calculation; I judge your figures are possible correct.

Q. And your excuse for the difference is that you made estimates of higher prices in the Chattanooga case than in this case?

A. Not an excuse, but as a method of approaching the estimate I intended when I made the unit prices in the Chattanooga case of 6% as the item to cover engineering and contingencies. In this case I started out fixing 16% as the amount so that in the Chattanooga case I made the figures a unit price on a basis comparable with 6% instead of 16% as I did here.

Q. And that would have made the Chattanooga prices fuller than the Knoxville prices by 10%?

A. That would have made the prices in the Chattanooga estimate on a higher basis exclusive of engineering and contingencies than the corresponding unit figures in the Knoxville estimate, after taking into account the difference in times and conditions between the two estimates.

Q. You have already stated I believe that the lowest prices
3397 obtaining at any time for two or three years on either side of it was March 31st 1901?

A. I said it was somewhere in that neighborhood. It was a period of very low prices.

Q. Now Mr. Ludlow, you didn't embrace in your Chattanooga estimate any hydrants and services; was that because the hydrants and services had been paid for by the city, or by water consumers?

A. I don't remember how that was. If they were left out of the estimate, that is most likely the reason for having done so.

Q. Well if they were paid for by the city and water consumers they should have been left out, should they not, and in point of fact were they not left out of both yours and Mr. Wingfield's estimates and for that reason?

A. I am not certain as to whether I had knowledge of the fact that they were left out of my estimate or not. I included in my estimate a large amount of small pipe, which it is quite likely I understood to be service pipe. In answer to the other portion of the question, viz: that if the service pipes had been paid for by the customer, my present judgment is that they should not have been left out of the estimate of replacement of the value of the plant on that account, for the reason that while the company makes a charge for making taps and connections, which is intended to nearly pay for the same, yet the burden is on the company to maintain these service pipes, and renew them as they become worn out, and I think, by common consent, are recognized as an asset of the water works plant, whether it be operated as a private corporation or by a municipality.

Q. Then you think that services that are put in at the expense of the water consumers, and for which a fund is to be provided out of the income of the plant to maintain from year to year, should be made a part of the basis upon which the consumers themselves shall be made to pay water rates, do you?

A. Well, I am not so certain of the question in that view;
3398 I think that is entirely a legal one as to whether or not the act of taking charge of and assuming the responsibility for those things constitute an ownership. I think that is purely a question of law.

Q. Don't the water consumers pay for the maintenance out of what you call the depreciation fund and also for the operation of the plant, repairs &c. Now would you, in addition to that make the cost of parts of the work that were placed in the works at their expense, and additional burden upon them and their water rates.

A. I didn't make them specifically pay twice for anything which they were to receive, and if it can be so construed by your thought or line of argument, I shouldn't subscribe to any such reasoning.

Q. Now Mr. Ludlow, in your estimate of replacement of this plant as of March 31, 1901 you have an item for services and pipes amounting to $38,714.00 which with the 16% for engineering and contingencies amounting to $6,194.00 gives an aggregate allowance in your estimate of $44,908.00. Now assuming that all of this item should be excluded on account of the ownership of these services, or the payment for their institution was made by the consumers except 423 services, I will ask you to state in round numbers how much in the aggregate would the dis-allowance of all of this item except the 423 services reduce your estimate?

A. Well in answering your question, I should have to know before answering whether the 423 services were in brick streets where the rate of $18.00 is made, or in macadamized streets where the rate is only $8.00?

Q. We will assume that they are in streets where there was only macadam, as there are only 413 of brick street services claimed out of the 4300 in the city, and these are old services?

A. Making the calculation as you request the result is found to be $41,524.00.

3399 Q. The difference is that?

A. The figures I have given are simply the result of the calculation which you asked me to make without any reference whatever to the correctness of the hypothesis or significance.

Q. It is the difference between the amount of your estimate for these services less the 423 that I assume were all that were put in by the city?

A. It is, yes sir.

Q. Now were you informed, either you or Mr. Wingfield in the statements furnished you or otherwise by the water company that all of the services in the city of Knoxville except 423 had been paid for by the water consumers and that in the estimate of Mr. William Wheeler of the construction cost of this plant up to March 31, 1901, there was only claimed to be due to company on account of services with the 20% the sum of $6,574.00. Were you informed of those facts at the time you made your estimate?

A. I am not certain that I was, and the reason I am uncertain is that I would have given it but little consideration when I was undertaking to fix a replacement value of the plant as it existed—the replacement value of a plant, which is a plant in operation—and I should certainly understand in making a replacement value that all the parts and elements of the plant, including service pipes, which makes it a going plant and furnish its revenue, should be properly included in a replacement value.

Q. But Mr. Ludlow, the pipe that connects the consummer, that runs through his yard and up into his house is a part of the plant in the sense you speak of, isn't it. You wouldn't think of estimating the value of that pipe?

A. No sir. There is this significant difference, that he is taking the pipes in the yard and the pipe to the curb-cock on the side-walk is essentially a part of the water works system.

3400 Q. Well it may do that and still not belong to it because it is paid for by some body else?

A. It may be that as a portion of the system but as a portion of replacement value it is an important ite-.

Q. The question I asked you awhile ago was whether they furnished you the information that only 423 of the services put in prior to March 31, 1901 had been put in at the expense of the company and the further fact that in the statement made up by the President and engineer of this company and of its manager of its fair construction cost they had claimed on account of services put in prior to that time with 20% added only $6,574.00. Were you informed of that?

A. I have already answered. I am uncertain as to whether I was so informed or not.

Q. Now Mr. Ludlow, going to the Lonsdale stand-pipe which enters into your estimate of replacement with the 16% for engineering and contingencies added at $8,024.88. Your estimate of the number of pounds in this stand-pipe is 120,000 pounds as against Mr. Nixon and Mr. Brown's estimate of 105,000 pounds. I will ask you what measurements or examinations you made of this stand-pipe, you and Mr. Wingfield?

A. I visited the stand-pipe and inspected it in a general way, the dimensions, its diameter, but the height had been furnished me which I took to be correct, and I measured, as nearly as I could the thickness of the bottom plates, and followed what is supposed to be good practice in proving the thickness of the plates to the height, and so determined what the weight of the stand-pipe probably was.

Q. What did you ascertain to be the thickness of the plates?

A. I haven't a memoranda of that. I took it some time ago. I think it was in the neighborhood of ¾ or ⅞ of an inch.

Q. Did you and Mr. Wingfield make any measurements of the thickness of the plates?

A. Yes sir we did, but it was simply a verification of the

3401 figures I had, which I do not now recall.

Q. Now isn't the only measurement you made out there was to measure the circumference of the stand-pipe at the base and to estimate the depth of the foundation?

A. In reference to foundations, that is about correct sir.

Q. And what was your estimate of the thickness you found?

A. I say I don't recall the thickness.

Q. Do you know at what thickness you figured this estimate?

A. I say I haven't those figures; they were taken a long time ago and I don't know where to find the memoranda now.

Q. And you cannot tell us upon what thickness you made the estimate?

A. No sir, I cannot tell you the thickness of the bottom plates. I would add to that answer that even without knowing the thickness of any of the plates and never having seen the stand-pipe but being advised of the diameter and height I should freely undertake to figure the replacement value of it by assuming certain thicknesses of plates.

Q. But the more accurate method would be the thickness of the plates that were used?

A. Well for an absolute straight replacement, but that would not necessarily be the proper way to get at it, for the stand-pipe might have been built at a time when it was presumed that the thic-ne-s requires was greater than more modern knowledge requires it, and in that event I should figure as replacement value the thinner plates, even though the existing structure had plates in keeping with former practice.

Q. Could you now give us the thickness on which we can calcul-te it at all?

A. No sir, I could not give you the figures upon which you might verify my 120,000 pounds.

Q. Now Mr. Ludlow, I notice you put it at 5 cents a pound erected. You allowed for the stand-pipe in the Chattanooga
3402 case 3½ cents, didn't you?

A. I made it very low there sir for the reason that stand-pipe builders were living right there and they were very much interested in that case, and they gave me a very much lower figure as to what they would do it for than I was accustomed to get it, and I was compelled to adopt the figures given me by the local stand-pipe builder even though I felt it was unreasonably low.

Q. The fact is though that you used 3½ cents as the price of the stand-pipe erected in the Chattanooga case while you have used 5 cents a pound in this case, is it not?

A. That is correct I believe sir.

Q. And you added to that in the Chattanooga case 6% for engineering and contingencies and in this case where you have used the higher price of 5 cents you have allowed 16% for engineering and contingencies?

A. Yes sir, that is correct.

Q. Well now what would the stand-pipe amount to figured at 105,000 pounds at three and one half cents as in the Chattanooga case?

A. 105,000 pounds of iron at 3½ cents amounts to $3,675.00.

Q. Well you have allowed for that item $6,000.00 in your replacement; how much would the reduction be?

A. I haven't allowed $6,000.00 for that item.

Q. Well for 120,000 at 3½ cents, you have allowed it?

A. Yes sir.

Q. Now I ask you how much would the item be reduced?

A. The difference between $6,000.00 and $3,675.00 is $2,325.00 unless I have made some error in these calculations.

Q. What were your measurements of the circumference or diameter of this stand-pipe at the base for foundation?

A. I calculated the foundation to extend on an average about 2 feet outside of the stand-pipe itself,which made it approximately about 30 feet or a little in excess of this. The depth I assume to be about, or a little in excess of 6 feet as it extends some above
3403 the ground, and I considered it would be necessary to go to that depth to get a firm foundation, which makes about 180 cubic yards of masonry contained in the foundation.

Q. Well now did you make any measurement at all to ascertain these facts upon which to make this calculation of foundation?

A. I had made the projection of the foundation beyond the stand-pipe and observed it, which was the same as measuring it.

Q. Did you *nad* Mr. Wingfield go out there and make measurements of the base of that stand-pipe for the purpose of ascertaining the facts?

A. I think Mr. Wingfield first accepted my statement as to the dimensions and he verified it afterwards, but not in conjunction with me, is my understanding.

Q. Where are your measurements, if you have made any?

A. I have no measurements for that other than I have already stated.

Q. It was a mere estimation upon your information as to the size of the stand-pipe?

A. No sir, it was a result of calculations after observing the foundation.

Q. But without any measurement of it except with your eye?

A. Well I assumed the diameter of the stand-pipe as correct, as contained in the record.

Q. Well if Mr. Wingfield says that you measured it and found the foundation 28 feet and estimated it at 28 feet 5 feet deep, he is mistaken isn't he?

A. I think he is, yes sir.

Q. Well if he made an actual measurement at all, he did more than you have done in regard to it?

A. The diameter of that foundation cannot be measured at all; it can only be determined by other measurements, observations and calculations.

Q. So if he says he measured it, he is mistaken, is he?

3404 A. I won't say that he is mistaken, but I will say that I think that the foundation is greater in diameter than that by a small amount, but he is as likely to be correct as I am.

Q. Well Mr. Ludlow, I see that you figure the stand-pipe on Reservoir Hill at 210,000 pounds which is identical in the number of pounds with the statement of Messrs. Nixon and Brown but you place it at 5 cents per pound. Now I will ask you how much the difference would be as to this item placed at 5 cents as it is in your

estimate and at 3½ cents as estimated for like work in your Chattanooga case?

A. The difference of the cost of 210,000 pounds at 5 cents and 3½ cents is $3,150.00. That is in answer to the first part of the question without any reference to, or admission that the statement contained in the latter part of the question, that is "for like vork in your Chattanooga case" is correct.

Q. But you did allow in the Chattanooga case 3½ cents for metal in the stand-pipe erected, did you not?

A. Yes sir.

Q. And only that amount?

A. That is correct sir.

Q. And you added to that 6% for engineering and contingencies while in this case you add 16% for engineering and contingencies?

A. That is correct sir.

The further taking of this deposition was adjourned until 2 o'clock P. M. Friday, January 15, 1904.

3405 FRIDAY, *January 15th*, 1904.

The further cross-examination of J. L. LUDLOW resumed at this 2 o'clock p. m.

By G. W. PICKLE:

Q. Mr. Ludlow, on page "11" of your deposition filed in the Chattanooga case August 6th, 1900 in response to a question in reference to the Fort Wood stand-pipe and the price at which you figured the steel in same, did you not make this statement: "I got the dimensions, the thickness of bolts &c. from Walsh & Weidner, the contractors who built it, and figured the weight of the metal in the stand-pipe, and figured the cost at the present prices of steel at 3½ cents a pound." Did you not make that statement with reference to the price which you figured on?

A. Yes sir, I made that statement.

Q. Now Mr. Ludlow, Messrs. Nixon and Brown in figuring the price of the metal in the stand-pipes in this case, have adopted practically your figures per pound in the Chattanooga case. I will ask you to state what per cent. higher have you figured the metal in the stand-pipes in this case than you figured them in the Chattanooga case exclusive of the 6% and 16% respectively that you figured for engineering and contingencies?

A. 42 8/10%.

Q. Now in adition to that you gave the 16% on the Knoxville price and only 6% on the Chattanooga price for engineering and contingencies, isn't that true?

A. That is correct, yes sir.

Q. Now you have stated that you figured the foundation of the Lonsdale-Beaumont stand-pipe as 30 feet in diameter and 6 feet deep?

A. Approximately those figures, yes sir.

Q. Will you make the calculation and see precisely how many cubic yards those dimensions make Mr. Ludlow?

A. It would be about 160 cubic yards at 6 feet deep.

3406 Q. Well accurately wouldn't it be just 157 yards?

A. Yes sir, that would be approximately it, but I think I considered that foundation larger at the base than at the top and taking 30 fet as the diameter I allowed some batter in the foundations.

Q. At any rate if figured on the dimensions you gave before adjournment, 30 by 6 feet you have a statement of 180 cubic yards for this foundation, an excess of 23 yards, have you not?

A. 23 yards amounting to $115.00 difference, but I think that in replacement value the foundation should be estimated at as much as 180 yards.

Q. We understand that or you wouldn't have put it in your estimate, but I am just seeing how you got at it. That would be an excess of $115.00 without the 16% added for engineering and contingencies?

A. Yes sir, that would be almost $19.00.

Q. Mr. Ludlow, I find in your estimate of replacement in this case under the head of River Station concrete in pumping station 722 cubic yards at $6.50 per yard, amounting without the 16% to $4,693.00 and with the 16% added to wit: $782.00 making in all $5,475.00, and under the head of Filter house and High Service pumping station I find concrete in settling basin walls 105 cubic yards at $8.50 per yard, amounting without the 16% to $892.50 and with the per cent. to wit: $148.75 making this item $1,041.25 approximately. Now I will ask you, if you did not in the Chattanooga case allow cement used in several parts and classes of the work uniformly at $4.00 per cubic yard and no more?

A. It is very likely I did, and if so it was because I found the concrete to be practically the same, which is not the case in the concrete to which you refer.

Q. Where was this 722 cubic yards that I have mentioned in the last question, and what was the nature of the work?

A. It was between the retaining wall and the wall of the

3407 Deane pump pit and in the Worthington pump pit and in the bottom of the Deane pump pit.

Q. And where was the other item in the filter house?

A. That was in the settling basin around the outside of the filter house.

Q. Now I will ask you if in the Chattanooga case you didn't fix at $4.00 the following items of concrete: "At the old station 56 yards of concrete, footings $4.00 a yard, boiler room and coal house 100 yards concrete foundation at $4.00, concrete in floor of boiler room 66 yards at $4.00, under the head of pump well, 360 yards of concrete at $4.00, and if there is 450 yards foundation under National and Jewel filters at $4.00 per yard, 83 yards concrete under Jewel filters at $4.00, 500 cubic yards concrete bottom of settling basin $4.00, 450 cubic yards concrete bottom of clear water basin at $4.00." Now I will ask you to take your deposition and state if these are not the items in your estimate of replacement and

all the items regarding concrete work in your estimate of replacement in the Chattanooga case, and if they are not all at $4.00?

A. That is correct, but the character of that concrete was quite different from the character of the concrete estimated in the Knoxville case, and at the same time I desire to state that the prices fixed in the deposition of the Chattanooga case for concrete as well as for the price of erecting stand-pi-es and doubtless other items, were intended to apply to that specific work and were not intended and should not be taken as a guide by any one, either engineer or other person, as a proper basis upon which to figure the valuations under different conditions.

Q. At any rate you figured them as honest and correct prices?

A. For the conditions as they existed there and of the character of the concrete.

Q. And in your replacement there you figured that as proper and sufficient for the purposes of the work for which it was in-
3408 tended, didn't you?

A. Yes sir.

Q. And they were quite sufficient or you would have called attention to them?

A. Not necessarily; I wasn't expected to point out deficiencies and defects. I was simply making an estimate of the value of the plant as it existed.

Q. Well what per cent. higher are the prices of $6.50 and $8.50 for concrete work than this price of $4.00 for concrete work which you uniformly fixed in the Chattanooga case?

A. I would answer that between $4.00 and $8.50 the difference in percentage is 112½% more, and in the other case it is 62½ per cents. more.

Q. Now in your deposition on page "29" in the Chattanooga case I will ask you if you were not asked, and if you didn't answer the following question: "Now in reaching a valuation for the settling basin and clear water basin, did you proceed in the same manner by determining what such work would cost in your judgement? A. Just exactly." Didn't you make that statement?

A. I would say yes.

Q. Now Mr. Ludlow, you have added on these higher prices used in your estimate of concrete work at Knoxville 16% for engineering and contingencies, while you added to the lower prices at Chattanooga only 6% for engineering and contingencies, isn't that true?

A. That is correct sir.

Q. Figuring this 722 yards and 105 yards, making 827 yards altogether at your Chattanooga price instead of at the Knoxville, what would the difference be in your estimate. You may figure it with and without the 16%?

A. In answering this question I wish it clearly understood that I am simply making the answer for your convenience, because the prices you name do not fit the character of concrete on which
3409 the figures are based here. The figures for 827 yards at $4.00 a yard is $3,506.48; at $8.50 $3,721.50 more than that. 16% added would be $595.44 more.

Q. The total difference between the two calculations is how much?

A. Without the percentage the difference is $3,721.50, including the percentage the difference is $4,647.74.

Q. Well now Mr. Ludlow, in the statement of replacement made by Messrs. Hill and Wingfield and which you had before you in the Chattanooga case when you made out your statement, all of these items of concrete were placed at $5.00, were they not, and you deliberately, upon full consideration, reduced them to $4.00?

A. I fixed them at $4.00 very deliberately; I don't know that I reduced their figures.

Q. Well they had fixed it at $5.00 in the statement you had be*ofre* you?

A. I don't know sir.

Q. Mr. Ludlow, you gave very deliberate and full consideration to the estimate of replacement that you made for the Chattanooga plant, didn't you?

A. Yes sir.

Q. Now Mr. Ludlow, we will pass to the storage reservoir which you and Mr. Wingfield have estimated in this case at $28,769.90 with the various contingent per cents added. The forst item is excavation and embankment, 13,000 yards at 40 cents, making an item without the per cent. for engineering and contingencies of $5,200.00 and with that item, to wit: $832.00 added makes $6,-032.00 as the expense of excavation and embankment for that reservoir?

A. No sir, that is not correct. It does not make that amount as the cost of the excavation and embankment at the reservoir necessarily has the percentage allowance, is not particularly applicable to each and every item alike. It is supposed to cover some items to a greater extent than others, and it is likewise made to cover some things that I omitted.

3410 Q. Well the 16% is calculated on that and all the other items that go to make up this estimate?

A. It is.

Q. Well now on the questions I am going to ask you as computed on those items, I will treat it as being assignable to those items and will ask you if $6032.00 is not the amount assignable to it?

A. According to your hypothesis and calculation of it, that seems to be correct.

Q. Will you give me the measurements upon which you calculated this excavation?

A. We calculated 13,000 yards on it.

Q. Did you take measurements?

A. You understand that the measurement of those embankments is a very uncertain matter to obtain. No one can possibly know the exact shape of the hill before the excavation for embankment was made, so that the best that can possibly be done now in determining the quantity of excavation, is to assume that it took a certain shape, and make approximate measurement of the height of the bank at different points, and make a calculation, as best one can, using his judgement as well as observation in determining the number of

yards of excavation and embankment together, and after doing that, we estimated that the excavation should be placed at 13,000 yards.

Q. Well what I want are the dimensions or measurements upon which you made that estimate.

A. I have no further answer in addition to that which I have already given as to the dimensions.

Q. Then you have no dimensions or measurements you can give us so that we can test the accuracy of the statement?

A. Except that you go and calculate the bank as I did. I measured around the outside of the embankments, judged the heights of the banks as nearly as I could, and judge what the shape the
3411 ground must have been in before the embankment was put there. It would be impossible for me to give any one the mental picture that one must have in determining this.

Q. When did you go there and inspect it?

A. The last time was during this visit in December, about Tuesday or Wednesday.

Q. Had you been there before that time?

A. Yes, sir.

Q. When did you make the most critical examination of it?

A. When I was there with Mr. Wingfield; we calculated, putting our observations and judgements together as to what the probable shape of the hill was before it was disturbed for the purpose of building a reservoir, and in making our calculations, there are quite a number of elements that could not well be produced on paper or either in a picture other than a mental picture of the situation.

Q. With whom did you make your first examination of it?

A. I am not certain, but I think with Mr. Hider or Mr. Johnston, or I may have made it by myself; I am not certain about it.

Q. Well there has not been any change in it from the time you made your first until you made your second estimate?

A. No, sir.

Q. You pursued the same methods in both instances; that is you made your estimate from an examination of the ground?

A. Yes, sir, I tried to get the best impression I could of what the excavation may have been. It is — very difficult thing to determine and no two persons would proceed in the same manner, and no one person would likely proceed in the same manner the second time unless he carried his notes.

Q. How long was it between the time you made your first examination and the time you made your second one?

A. About a year.

Q. Did you get the same number of yards both times?

A. I think not; I think the first computation I made on it showed more yards than the last one.

3412 Q. Did not you make 16,000 yards of excavation and embankment in your first estimate and now make it 13,000 yards?

A. I did, yes, sir.

Q. And that alone would make $1,500.00 difference between

your first estimate of this quantity of excavation and embankment and the present one?

A. A difference of $1,200.00.

Q. You just made a difference in the two estimates of 3000 cubic yards of excavation and embankment in estimating that reservoir?

A. Yes, sir.

Q. Had you any information, Mr. Ludlow, at the time, or at either time you made these estimates that the books of the water company and the testimony of the contractor who did this work showed that there were actually 10,000 yards of this excavation and embankment?

A. I don't recall, sir; no, sir, I have no recollection of it. If I had had such information and if it had appeared reliable, I doubtless would have used it.

Q. Now, Mr. Ludlow, in your estimate in the Chattanooga case for excavation in the settling basin and clear water basin, did you not fix the price at 20 cents instead of 50 cents as you have fixed it in your first estimate in this case, and at 40 cents as you fixed it in your second estimate in this case, and I will ask you to look at your deposition in that case and see if you do not find under the head of "Settling basin" this item, 4,267 yards excavation at 20 cents, and under the head of "Clear water basin" 3,600 yards excavation at 20 cents?

A. That is correct, but for different excavations entirely.

Q. Certainly it is not the same excavation?

A. No, sir, and if that dirt had been there used as it was necessarily used here to make high water tight embankment and placed as it should have been, that price is entirely too low.

Q. You didn't know that this work was actually done at 12½ cents a yard originally?

3413 A. No, I don't believe that it was; if it was, in my opinion whoever got pay that way lost money on it.

Q. Well, that is what you would think about it?

A. Yes, sir, and a very strong think.

Q. The contractors and bidders would know better than you?

A. Well, they might know better what they did it for, but might not tell how much they lost afterwards.

Q. Well, suppose, Mr. Ludlow, you reduce this item on my assumption that there is in proof in this case that there are only 10,000 yards of excavation and embankment to 10,000 yards and put it at your Chattanooga price of 20 cents a yard for excavation, to what extent would this item be reduced by that calculation?

A. Unless the Court says it is necessary for me to make those calculations, not seeing myself that it has any bearing on my testimony, I shall have to respectfully decline to make those computations.

Q. Oh, well, Mr. Ludlow, we have been very accommodating in this case, and we can't handle these items and show these differences without it. I will probably have to put my question in another form and make these calculations.

A. Without the percentage consideration the difference would

be $3,200.00; with the percentage allowance the difference would be $3,912.00.

Q. Now, Mr. Ludlow, the next item under the head of "Storage reservoir" is concrete and brick lining 47,196 square feet at 30 cents per foot, making without the 16% $14,158.80. Reduced to yards this would be 1,167 yards, would it not?

A. 1,167 yards, that is correct.

Q. And what would this concrete and brick lining be computed at by the cubic yard, Mr. Ludlow?

A. About $12.13, I think, sir.

Q. Well now for sides and bottom of reservoir and clear water basin in the Chattanooga case you computed at $4.00 per
3414 cubic yard, didn't you?

A. Yes, sir, but in that case there was a vertical wall, and it wasn't a reservoir lining—it was a straight, vertical reservoir wall is my recollection of it. It was not comparable with this case at all.

Q. What sort of walls did you figure in the Chattanooga case?

A. I think they were vertical walls; I think the reservoir lining was vertical.

Q. The same thickness of bottom and top?

A. O, no. This reservoir has a sloping back on the inside and simply a thin reservoir lining. The Chattanooga reservoirs, according to my recollection have vertical banks on the inside and has thick concrete wall as a retaining wall; it is an entirely different character of work from the reservoir lining which we are considering here.

Q. Well, the bottoms were the same?

A. The bottoms were practically the same, but the bottom made a very small part of the total.

Q. Well, how much was the bottom?

A. I really don't know, sir; I haven't a sketch of the bottom of that reservoir, but it was a very small portion of it. I didn't take any memoranda of the actual bottom as it was so small as compared with the sloping embankments.

Q. Well, at any rate whatever bottom there was, was put in this estimate at $12.10?

A. Well, it was all merged in with the embankment.

Q. And the walls are put at $12.10 while in the Chattanooga case they were put at $4.00?

A. No, sir, there were no walls here?

Q. Well, the sides I will say?

A. Then if you call these sides, there were no sides in the Chattanooga case. This $4.00 charge and $12.00 charge are not
3415 comparable; they cannot be compared as to engineering construction.

Q. And your reason for making the difference is because that in one case the sides are sloping and in the other they are purpendicular?

A. One is a thin lining on a sloping surface, the other is a vertical retaining wall entirely different in character.

Q. Can you recall any instance where concrete has been placed at $12.10 a cubic yard except this one?

A. Well I think——

Q. I am not asking you for what you think.

A. To the best of my recollection and belief a thin reservoir covering that I had put on recently on a septic tank cost that much or more.

Q. How large a tank was that?

A. An area of about 60 x 80 feet.

Q. How thick was the covering?

A. 6 or 7 inches.

Q. Where was that done?

A. At Durham, N. C. We paid $8.00 a cubic yard for a large lot of concrete work, and this particular piece was put in at $1.00 extra per square yard, which if 6 inches thick would make it $14.00 a cubic yard.

Q. When was that done?

A. During the past summer.

Q. What was the total thickness of the walls?

A. I am not talking about the walls; I am talking about the covering.

Q. What was its thickness?

A. 6 or 7 inches; it was intended to be 6 inches; it may have varied some.

Q. What did you intend to make the sides over here?

A. 8 inches we assumed them to be.

Q. Was the material to be uniform all through that 8 inches?

A. Well presumably it is or should be.

3416 Q. The same material throughout?

A. Well they may have used some brick instead of all *all* concrete, but I couldn't get enough information as to the amount of the difference to undertake to separate it, and put it in at the price that lining would, most likely cost, of that character.

Q. So you figured it as a solid piece of concrete 8 inches thick, the same composition throughout?

A. Either that or its equivalent.

Q. I notice an item of puddling sides and back $1887.04. Have you any knowledge as to whether there was, in the construction of that reservoir, any puddling of sides and back?

A. Not personally; I took Mr. Wingfield's statement in regard to that. He said he was here at the time it was being built, and I know as a matter of fact the sides should have been puddled, and therefore in making a reproduction estimate, puddling should be included.

Q. Well all you knew of this matter of puddling was what Mr. Wingfield was able to tell you?

A. And what I knew, if the reservoir was to be replaced.

Q. Unless this puddling of sides and bottom was done in the original construction, then this item of $1887.04 and its accompanying 16% should be omitted from the replacement, should it not?

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A. All that represents puddling sides and bottoms sould be eliminated.

Q. I find an item here of $1000.00 under the same head of "Storage Reservoir" preparing hill-side for embankment. That item is just arbitrarily assumed without any knowledge that anything was done, wasn't it?

A. That is right; it was assumed that the hill-sides must
3417 have been cut down, rolled and prepared for the embankment. I am not sure that it was done, but it is reasonable to assume that it should have been.

Q. You didn't have any such item in your former estimate?

A. I think I over-looked that.

Q. Well suppose the fact was and is that the city of Knoxville had owned that reservoir property, and prepared it for excavation, and actually commenced the excavation, and paid for that work before it sold the property to the Knoxville Water Company and that there was in fact no preparation to be made, and none made by the Water Company, then it is an item that ought to be eliminated also?

A. Yes sir.

Q. Now I find under the same head of "Storage Reservoir" contingent allowance for bad bottom $2000.00. Did you have any knowledge upon which that item is allowed?

A. Well I had been informed that at the completion of the reservoir the bottom had dropped out, and the water disappeared and it was a matter of quite a large expense to repair the bottom. That having happened, was the best evidence possible that it was a condition or contingency that certainly should be provided against by some proper allowance, which allowance I assumed to be $2000.00.

Q. Now suppose that this thing occurred after construction had been finished, it is not an item then that enters into the cost of construction, is it Mr. Ludlow?

A. Yes sir, very decidedly, at least in the replacement cost of the plant. We put in contingent items covering things which we think may happen, though we are not certain whether they will or not, and if we have evidence that a thing did happen, we have put in a fund covering the contingency of such happening?

3418 Q. Well then, you were informed as to what did actually happen in regard to the contingencies in the construction of the reservoir?

A. In relation to the bottom falling out.

Q. And you allowed it upon information of that fact?

A. Yes sir.

Q. As a provision, not against a future contingency, but one that was already known to have happened?

A. Which was a necessary part of the cost in constructing the reservoir.

Q. Now have you any other information of any other contingencies that occurred in the construction of that reservoir?

A. Nothing of any definite character that were represented in the Construction cost as in this case.

Q. Now I see at the bottom you have allowed engineering and

contingencies 16% additional. How much of that is for contingencies?

A. About 10%.

Q. You don't mean 10% of that amount?

A. 10% of the whole amount.

Q. Which would be nearly $2500.00?

A. Yes sir.

Q. So that if you allow the contingency as to bad bottom, and then make this additional allowance for contingencies, you have the sum of about $4500.00 allowed for contingencies on the construction of that reservoir, hav-n't you?

A. Well the allowance for that bad bottom oughtn't to be considered the same as the ordinary contingency fund, as that was a proven necessary expenditure in order to establish the reservoir and it is not a contingent expense that is usual or common to similar construction.

Q. Well Mr. Ludlow, don't you think that this sum of $2500.00 contingencies would have been a pretty liberal one without any allowance of $2000.00 for the only contingency which you know has happened?

3419 A. No sir, I do not, as there are other items there which enter into the building of a reservoir, which we cannot see at the present time to estimate upon, yet we do know that they do occur when establishing a reservoir similar to that, and unless we should put in a contingent item to cover items which we are unable to enumerate beforehand, we should not have a complete estimate of the cost or value of the reservoir.

Q. Well now Mr. Ludlow, in your estimate of settling basin and clear water basin in the Chattanooga case, didn't you make 6% cover both engineering and contingencies on both of those items?

A. Well with what I had intended to cover under that item of engineering contingencies, I did provide for in that 6%.

Q. And now in the Knoxville case, you say 10% for general contingencies alone isn't sufficient without an allowance of $2000.00 for bad bottom additional?

A. That is what I say yes sir; not more than sufficient at least.

Q. In your estimate in this case you have allowed upon all of the items which go to make up the cost of storage reservoir, including the contingent allowance for bad bottom, 16% for engineering and contingencies, while in the Chattanooga case you allowed only 6% for engineering and contingencies for settling basin and clear water basin, is that not true?

A. It is true as stated but not inferred. The 16% for engineering and contingencies in the Knoxville case is intended to cover very different items from the 6% allowed in the Chattanooga case.

Q. Mr. Ludlow, passing to the question of excavation at the River Station; you have at that Station 3600 yards of earth excavation, have you not?

A. That is correct, yes sir.

3420 Q. Ranging from 20 to 30 cents per yard?

A. Yes sir.

Q. 1954 yards of this excavation is designated as being "around station"?

A. That is correct, yes sir.

Q. That is the removal of superficial earth, is it not?

A. Yes sir.

Q. And that quantity is a mere arbitrary estimate without knowledge of the existing conditions at the time?

A. Well it is based upon the best idea one can secure from the ground now. Of course that cannot be, in the nature of the case, strictly accurate; it may be more or less.

Q. Now your estimate of this earth excavation exceeds that of Messrs. Nixon and Brown by nearly one-half, being 1807 2/10 yards, and exceeds the amount contained in Mr. Wheeler's estimate, to wit: 2269 yards by 1331 yards. Now taking Mr. Wheeler's estimate of the amount, and the average price say 25 cents that you have allowed here, how much would this excavation be in excess; that is I want to know how much 1331 yards would amount to at 25 cents a yard?

A. $332.75.

Q. And on top of that is added in your estimate 16% or about $50.00?

A. Well that is approximately correct.

Q. And on rock excavation at the River Station you have estimated 2608 cubic yards, have you not?

A. That is correct, yes sir.

Q. Ranging in prices from 80 cents to $3.00 per yard?

A. That is correct, yes sir.

Q. One item is for 1296 cubic yards around station; that is a mere arbitrary estimate without knowledge of the situation as it existed at the time?

A. It was determined in the same manner as earth excava-
3421 tion, as near as it could be approximated.

Q. Assuming as I state the fact to be shown in the record, that Mr. Wheeler, the President of this Company, has estimated the yardage of rock excavation at the River Station at 2193 cubic yards, and that Messrs. Nixon and Brown have estimated the same at 1735 cubic yards; your estimate of the yardage is 415 cubic yards in excess of Mr. Wheeler's and 873 cubic yards in excess of Messrs. Nixon and Brown isn't it?

A. That is correct, yes sir.

Q. Now going to brick, your estimate in the Chattanooga case was by the number or quantity of brick according to the engineer's rule of solid contents of the wall, was it not, Mr. Ludlow?

A. I think it was, y-s sir.

Q. And that gets a less number of brick, or thousand of brick than the contractor's method, does it not?

A. I don't know sir that there is any fixed contractor's or engineer's method by which they can be so classified. Engineers I think, as a rule, not necessarily always, reduce it to cubic feet—assume so many brick to the cubic foot according to the size of the brick, which differ in different localities; The Contractor's method, I am not familiar with, though I think it varies in different places.

Q. Now to refresh your memory about that a little Mr. Ludlow, I will read from pages "26" and "27" of your deposition in the Chattanooga case as follows; speaking of the difference between your estimate and Mr. Wingfield's as to the number of bricks:—"Q. You differ from Mr. Wingfield in regard to the number of brick used in the pump station out there and in the pump well is due to the different methods of calculation? A. Yes sir, I think it is
3422 due to the different methods of calculation. I think possibly he used the local method of just taking the solid wall and measuring the number of brick it would take for the openings; I figured the absolute solid wall, the solid contents of the wall. Q. He figured by the local method, you think? A. I presume that he did. Q. You figured on the same kind of method as to the general valuations? A. Well I figured on the general valuations, yes sir. Q. And got the number of brick in the wall? A. Yes sir. By figuring that way you will get more brick than there actually is in the wall; there is not a contractor but what will tell you this; by that method he will figure out more brick than is actually required to build the wall." Now didn't you make that statement in your deposition in the Chattanooga case, and isn't it true?

A. That answer is substantially correct, for the reason that in figuring the solid contents of the wall, we do not really make an allowance for mortar joints, or for mortar joints as thick as they will likely be in the wall as laid, and when this is the case there will be less brick actually laid in a wall than the calculation by solid content divided by the unit contents of brick would indicate that there might be.

Q. Well now isn't this the difference in the two methods, that the engineer's method of computing the number of brick in a building, is to ascertain the solid contents of the wall, exclude all openings, and to estimate 17 brick to the cubic foot, and that the contractor's method is to estimate the wall and one-half the openings and allow 20 or 21 brick to the cubic foot?

A. I believe that portion of your question as to the method of the measurements and allowances for openings to be correct but the number of brick that either the engineer or contractor would use, would depend largely upon the location, as the specific size of
3423 brick vary in different localities, and some brick even that are intended to be of the same dimensions, will vary in the number required to build a certain amount of wall, in that the joints will be thinner and a larger proportion of space taken up by the brick with thin mortar joints.

Q. Well you have told us the method pursued in the Chattanooga case; now what method did you pursue to ascertain the number of brick used here?

A. I used the same method here. I did not, however, take the cubic contents of the separate brick, but rather took the number of brick per cubic foot, and calculated the solid wall and then deducted the openings, but did not make the allowance as indicated in your previous question, that of eliminating one-half of the openings.

Q. How many brick did you allow to the cubic foot?
A. Eighteen I think sir.
Q. And you say that you didn't take the openings into consideration?
A. Yes sir, I deducted the openings from the solid wall.
Q. All of them?
A. Yes sir.
Q. Now I will ask you to look to page "2" of your replacement statement and see if you are not mistaken about that, and that only one-half of the openings are deducted?
A. Yes sir, you are right about that.
Q. Now ain't you mistaken about using "18" brick; didn't you use "17"?
A. Whatever Mr. Wingfield says is correct, as he had the memoranda that we made up our estimate from.
Q. Have you any measurements there that you took?
A. No sir, I do not find any memoranda on which I could base an answer to the question.

Q. How many brick to the cubic foot did you use in the
3424 Chattanooga case?
A. I don't know sir.

Q. But now in view of the fact that you used the solid wall in the Chattanooga case, and that your statement here, to which I have called your attention shows that in this case you included one-half of the openings, are you not satisfied that you have gotten more brick in the estimate of the Knoxville works, at least to the extent of one-half the openings, than you got in the Chattanooga works?
A. It might be so inferred, except for the fact that w-erever I deduct the entire openings I would make a different allowance for the window fittings than I would where I allowed only one-half for openings. The object of allowing only one-half for openings is to cover the cost of squaring up the corners and fitting the shapes for the windows and doors in the openings and if the total opening is calculated, why then there must be a larger allowance for windows, doors and setting same than there is where only one-half the openings are deducted; so that, though it may appear that more actual brick count was used in the building, that is compensated for by the price being fixed for the openings commensurate with that method of determining the number of brick in the wall.
Q. Well now, did you embrace these openings, or did you not embrace them for that purpose in this particular instance?
A. Yes sir; if I had been making this estimate on the same basis I did at Chattanooga, I would of course have taken out the openings entirely.
Q. Well you get more brick——
A. I was getting at a value of the building, and I was adopting the method that appeared the more rational to give the most reasonably correct method that I could get at.
Q. Well now, just answer this question; if in estimating the brick at Knoxville you included one-half the openings; you
3425 certainly got more brick than were in the walls didn't you?
A. Well that is a little hard to answer in the affirmative;

there may have been that many of the bricks that were broken up, destroyed and thrown out altogether.

Q. Don't you get more brick than are included in the walls?

A. Yes sir.

Q. Now in estimating at Chattanooga the solid contents of the wall, including the openings, you got as accurately as can be done the number of brick used in the wall, didn't you?

A. Oh I think if you take the actual number of the brick, one at a time, that your method is probably correct, but for the purpose of making an estimate, as was the purpose here I don't think it is any more correct than the other method.

Q. Well now you have estimated common brick laid in lime mortar 164,490 at $12.00 per thousand, have you not in this case?

A. Yes sir it seems so.

Q. Now in the Chattanooga case you estimated brick laid in lime mortar as you have stated in your former deposition, at $8.00 a thousand. Now I will ask you to state what would be the difference between this number of brick laid at $12.00 a thousand and at $8.00 a thousand, with and without the 16% added?

A. The difference in cost between the two, without considering the percentages, would be $657.96, and counting the percentages $895.88.

Q. Now I notice here Mr. Ludlow, that your prices for brick laid in cement of $14, $15.00, $17.00 and in one instance for brick laid in the tunnel $20.00. What were your prices for brick laid in cement in the Chattanooga case?

A. I don't know sir.

Q. Well I will ask you if it wasn't $9.00 except in the
3426 pumping well where it was $11.00?

A. I don't know sir, unless you can point it out in the deposition. I find the $9.00 item, but I don't see that it refers to brick in cement.

Q. Well do you find any at a higher price, except the $11.00 price in the pump well?

A. I find the $11.00 item in the pump well.

Q. What have you charged in this case for work in the pump-well?

A. Laid in Rosendale cement in old engine pit $15.00. Laid in Portland cement, new engine pit $17.00.

Q. And that is without the percentage?

A. Yes sir, without the percentage.

Q. Now I notice that under the head of "Chimney stack" you have 52,600 brick at $20.00 making $1052.00, and 15,000 at $7.00 extra, vitrified brick and trimming brick 3200 at $20.00. What do you put brick work in the chimney stack at Chattanooga at?

A. I think it was $12.00.

Q. Isn't it under the head of "Chimney" in your estimate in the Chattanooga case that we find the item of 125,000 brick at $12.00 per thousand?

A. That is correct, but you find 5000 fire brick at $30.00 a thousand which is with that, but which is not included in the chimney stack at this place but merged into the general price of brick.

Q. Hav-n't you put vitrified brick in here?
A. That is not fire brick though.
Q. Do you know whether the chimney is built with fire brick?
A. I don't know how it is—it is on the inside.
Q. Isn't it a fact there is no such thing in Mr. Wheeler's estimate?

A. That may all be true, and yet the fire brick lining be
3427 there.

Q. Well if you intended to allow for fire brick, why didn't you pursue the same course as in the Chattanooga case?
A. Because I wasn't using the deposition of the Chattanooga case as a guide in making my estimate here, realizing that the conditions were entirely dissimilar, and no reason whatever existing why the prices or other considerations in the Chattanooga case should be used as a guide in making an estimate of the replacement value of the Knoxville water plant.
Q. Well now Mr. Ludlow wasn't the chimney stack at Chattanooga 125 feet high, while this here was only 75 feet high?
A. It appears to be so.
Q. And therefore the construction in the Chattanooga case necessarily more expensive than in this case?
A. Well from 75 to 125 feet makes but little difference as the walls are naturally thinner in a lower stack than in a higher one, and the cost of laying brick in a thick wall is always considerably less than in a thin wall.
Q. There was less than one-half the number of brick used in the Knoxville stack than was used in the Chattanooga chimney?
A. I think that is correct, and that is another reason why the price per thousand would be considerably more in the Knoxville stack than at Chattanooga, is the finishing of the inside and outside faces, the middle portion or body of the wall being of easy construction, and the thicker that middle core is the cheaper the stack can be built.
Q. And you think a difference in the two cases of $8.00 per thousand would be a reasonable difference, do you?
A. I think it is a very reasonable difference in these two estimates, yes sir.
Q. With 6 per cent. added at Chattanooga for engineering and contingencies and 16 per cent. added at Knoxville for the
3428 same purpose?

A. Yes sir, I think it is entirely consistent.

Q. Well Mr. Ludlow, how did you get at the price, or the difference between the price of common brick and vitrified brick in your estimate in this case?
A. I think I obtained that data from Mr. Kimball as to the cost of the brick as they were purchased.
Q. What did you put common brick at?
A. At $6.50.
Q. What did you put vitrified brick at?
A. Vitrified brick were $7.00 more; that would be $13.50.
Q. What did you put Portland cement at?
A. Between $3.00 and $3.25, Portland cement.

Q. What did you put it at per barrel, Portland cement, in making your estimates in this case?

A. I will say $3.00 a barrel.

Q. You think that is what priced cement you used in this estimate?

A. Yes sir.

Q. What did you put crushed stone at, for use in cement work?

A. You don't use stone in cement work.

Q. Well in making concrete what did you put stone at per cubic yard?

A. I used from 90 cents to $1.00 as the cost of delivering crushed stone.

Q. What was the price you used in your estimate?

A. Well I used different prices. It cost more to get stone up on top of the reservoir hill than at other places.

Q. What did you use at the other places?

A. Well I would say from 90 cents to $1.00.

Q. At what price did you put sand per yard, delivered, in making up your estimate in this case—you and Mr. Wingfield?

A. 75 cents a yard.

Q. Sand?

A. Yes sir.

Q. And cement at $3.00 per barrel?

A. Yes sir.

3429 Q. And lime at what?

A. 85 cents a barrel for the lime.

Q. Who made the calculations or furnished the prices of those things?

A. Mr. Wingfield and I assumed and fixed all the values ourselves.

Q. In what proportions did you mix your cement?

A. Some of it 1 to 2, and some 2 to 3, and some 1 to 1.

Q. Well I don't understand those figures; give me the contents of the elements and the quantities of each that you put into each of the different kinds of concrete that you worked into this plant?

A. What kind of concrete?

Q. Well take the work at $6.50, that was done at the pump station? What did you put into that; how was the mixture made?

A. For that $6.50 concrete, which I think was up on Reservoir Hill, I would figure that stone at $1.20 say, sand at 25 cents, cement at $2.00, labor at $2.25, protecting concrete from moistening and covering &c. 20 cents, which equals $5.90, and adding 15 per cent. figures up $6.78. I evidently took off the few cents from different items, and fixed the price at $6.50 per yard; I presume I eliminated 28 cents making it $6.50 a yard.

Q. What I want to know Mr. Ludlow, is the proportion in which you put the sand, the cement and stone into the mixture; what are the proportions?

A. Of course those mixtures will always vary more or less. The mixture that I assumed was in a cubic yard of Rosendale concrete about 92/100 of a yard of crushed stone would be used; 37/100 of

a yard of sand, and 1½ barrels of cement. Is that what you want General?

Q. Now that is in Rosendale cement?

A. Well that is in one grade of mortar, yes sir.

3430 Q. That is the $6.50 grade?

A. Well the $6.50 was a little additional mixture possibly, but that is very close to it; it may be 1⅓ of a barrel possibly.

Q. How did you change it to make it $8.50 a yard?

A. I used Portland cement instead of Rosendale.

Q. In what quantities did you use Portland?

A. Here we use a barrel and two-thirds and we would add the difference between $1.25 for Rosendale and $3.00 for Portland.

Q. What would 1⅔ barrels come to at $3.00?

A. Well that would be $5.00.

Q. Then how much sand would you put in?

A. 37/100 of a yard.

Q. Well what would that come to?

A. About 26 cents.

Q. Then how much stone would you put in that?

—. 92/100 of a yard.

Q. At what price?

A. At $1.00 a yard. If I used it up on top of the Hill, I would put it at $1.25 a yard.

Q. Well how much would that make on top of the hill?

A. About $1.13.

Q. How much labor now would you put to the yard?

A. $2.25.

Q. Anything else to go in?

A. No I guess that is about all of it.

Q. Well now Mr. Ludlow have you a memoranda there from which you give these data that you used in making the calculations or have you ciphered it out?

A. I have tried to give you a memoranda the best I could from the information I have here. If you will let me know exactly what you want, I will be very glad to give it to you.

3431 Q. Now in point of fact didn't you use Portland cement at $2.25 a barrel?

A. No sir, I didn't consider we could buy it as cheaply as that.

Q. And didn't you use sand at 50 cents a yard?

A. I haven't that memoranda; I may have used that.

Q. And didn't you use stone at 50 or 75 cents instead of $1.00 or $1.25?

A. No sir, I don't think I did.

Q. In the estimate that you have just made, that brings these mixtures up to about $6.50 or $8.50, and by that you have used Portland cement at $3.00 a barrel, sand at 75 cents, and stone at $1.00 or $1.25 a yard havn't you?

A. I think so yes sir.

Q. Well now, if in point of fact the calculations were made, or you should make them on the basis of $2.25 a barrel for cement and 50

cents a yard for sand, and say 75 or 85 cents for stone, per yard, it would be very much less than that, wouldn't it?

A. I don't know what; I think it would be some less.

Q. Wouldn't it climb down to about $5.00?

A. Yes sir, I presume it would.

The further taking of this deposition was adjourned until 9 o'clock Saturday morning, January 16th 1904.

3432 SATURDAY MORNING, 9 O'CLOCK A. M., *January* 16, 1904.

The further cross-examination of J. L. LUDLOW resumed by G. W. PICKLE:

Q. Well now, stond for concrete was much higher at Chattanooga than at Knoxville, being $1.40 while at Knoxville it was less than $1.00?

A. I don't know; I don't recall the price of stone at Chattanooga; I think the Knoxville price should be assumed at about $1.00 per cubic yard.

Q. What, in your estimate, did you put Rosendale cement at per barrel in the Knoxville estimate?

A. I did not fix any specific value to Rosendale cement. I assumed that at that time, what I considered to be a reasonable cost of Rosendale cement, realizing that it was practically impossible to determine exactly what Rosendale cement might have cost at that time. I should say it might have been purchased here anywhere from $1.00 to $1.25, and possibly, but not probable, as low as 90 cents a barrel for the cheapest grade of cement.

Q. What did you figure it at?

A. In making up my estimate, I figured just as my estimate indicates, upon a value of concrete per cubic yard, basing that estimate upon my general knowledge of the cost of concrete at different places under different conditions, and applying that knowledge and experience to the conditions I found here, and to the uses to which the concrete was to be put—the manner of its placing, the character and purpose of its use, and the service which it was to perform.

Q. You then made no specific analysis on any ascertained prices at Knoxville at that time, did you?

3433 A. I do not think I did, in the manner I understand you to mean. I did just as my previous answer states, for I felt that I knew what the various prices of concretes were; that is, concrete laid to make water tight, and concrete that was required to be put under foundations, and for the several uses to which the concrete was to serve.

Q. Of course, this is all very entertaining Mr. Ludlow, but when you are done, you will find that your talk will only involve you in more discussion. Now, if you made an alalysis of the concrete that you used at the River Station, or of the concrete that you used at the Filter Station, or of the concrete that you used for lining and putting the bottom in the reservoir, I wish you would turn to your memoranda of that analysis and give it to us, showing how much

concrete, stone and sand you used per yard, and the prices you assigned to the same?

A. In making up my estimates, as my two previous answers would indicate, I made no such analysis to determine the value of the concrete.

Q. Now how much did you allow for labor in laying the concrete or placing it at the River Station, 722 cubic yards; how much I mean per yard, is your allowance for labor?

A. I allowed a price of $6.50 which covered all items entering into the concrete.

Q. You don't know how much was to be assigned to "labor" in making any laying that concrete?

A. I think I could give you some opinion if I thought that was the proper way to approach the subject, but I didn't approach it in that manner. I would rather be governed by the known cost of concrete for similar work, and under similar conditions.

Q. Well that is one way to get at it, and the other way is to
3434 ascertain its actual cost, isn't it?

A. Well I doubt if any two persons could get at it by the lines you indicate. I don't think it is the preferable way *way* at all; in fact, I think my way is the better one.

Q. Excepting yours and Mr. Wingfield's in this case, do you know of any two persons that have gotten at it by the other method?

A. I do not.

Q. And you get at a different price than what you did a few months before at Chattanooga?

A. I hav-n't made a price a few months ago in Chattanooga; that was a few years before this estimate was made.

Q. Didn't you make this estimate as of March 31st 1901?

A. I made it as of that date but not at that time.

Q. Well now you disagree with Mr. Wingfield in your allowances for concrete in that case, didn't you?

A. I don't know sir.

Q. Don't you know he allowed it at $5.00 a yard and you put it at $4.00?

A. I recall it now from your reading the testimony, but I didn't recall it at first.

Q. How much did you allow for the labor of mixing and placing the concrete, in addition to the cost of material at the reservoir; I mean how much did you allow for the labor of preparing and placing a cubic yard of this material in the bottom and sides of the reservoir?

A. I didn't undertake to make any such sub-division of the cost.

Q. Well what would you think would be reasonable as the cost of labor for mixing and placing that concrete on the bottom and sides of the reservoir?

A. I don't care to express a thought of that character believing that from my previous answers, it would not be consistent
3435 with my method of fixing the value of the work which is incorporated in my estimate of value.

Q. Then you cannot, or if you can, you will not give an estimate of the item of labor entering into that concrete work?

A. That is correct.

Q. Now Mr. Ludlow, you gave us the composition yesterday of the concrete at the pumping station and also at the filter plant. In what respect, as regards the material used, and the quantities used, did the concrete used in the bottom and sides of the reservoir differ from that of the River Station and Filter Station that you have already undertaken to give us some analysis of?

A. I didn't undertake yesterday to give you an analysis of the composition of concrete, or its cost. I simply undertook to answer a few questions which you asked which did not give a complete analysis of the cost or composition of concrete in any instance, as I understand it.

Q. Well did the concrete that you used in the bottom and sides of the reservoir differ in its composition in any respect as to the material or kind of material used, as estimated by you, from that used at the filter station or at the engine pit?

A. I am not prepared to answer specifically, but I should assume that the composition of the concrete used in the reservoir was very similar to that used in the coagulating basin of the filter plant, but the method and manner, and cost of its placing would be quite different.

Q. You think that the concrete, so far as its mixture and the quantities used, was very similar to that used in the filter station?

A. Not in the filter station, but in the coagulating basin.

3436 Q. How did you estimate it as being similar, different or how?

A. I estimated it as being a good Portland cement concrete.

Q. And of the same character at both places, in the basin at the filter station and in the reservoir?

A. Not necesarily the same, but probably of a very similar character.

Q. How did you do it in fact?

A. In point of fact, I estimated the cost of placing a good concrete, suitable for that work in that composition based upon knowledge of what such works costs.

Q. Well what concrete would have been suitable at one of those places would have been sufficient at the other, wouldn't it, so far as the mixture was concerned?

A. That would depend upon the judgment of the engineer during the construction. My opinion now is, that it might be changed if the work was under construction, but that it should be of a similar character. I think there should be used the very best Portland cement that could be obtained, and a very rich mixture made, and the utmost care and pains taken in its placing.

Q. Well you though- that about the similar work in the settling basin and clear water basin work at Chattanooga too, didn't you?

A. No, that is an entirely different construction at Chattanooga.

Q. Still you thought the same amount of care in doing that kind of work should prevail?

A. I don't know what I thought then, but I presume I thought the same as now, viz; that in building retaining walls such as those in the Chattanooga basin, the same care would not be necessary
3437 as in the walls and lining that we are considering here. I wish to say in this connection, that when you were asking me yesterday about the price of cement, I was confused in my mind between the years 1901 and 1902, and had in mind the high prices that prevailed in 1902, and the prices I gave you would not be suitable for the date of March 31st 1901, if that is the date to which your questions alluded, and I presume now that it was.

Q. Well what do you mean as to "high prices"?

A. Well during 1902 the consumption of cement had become so great by *over* the supply that the mills were over-taxed and they were unable to meet the demands; consequently the price became very high—probably reached the highest point obtained since the manufacture of Portlan- cement in America has become an industry of any magnitude.

Q. So you think in your answers yesterday you had reference to the high prices of 1902?

A. Of cement, yes sir; that was the time I had in mind.

Q. Well now Mr. Ludlow, I see that in your estimate of replacement, made as of date September 30th 1902 when the high prices you say were in vogue, you placed the concrete, bottom and lining at $10.00 per cubic yard, while in your present statement as of March 31st 1901, when you have just stated prices were much lower, you place it at $12.13 per cubic yard. How does this happen?

A. It happens that when I took up the matter with Mr. Wingfield, who knew something about the character of the construction here, I was able to understand myself more completely, the character of the work that was necessary in making that reservoir lining, and was thereby enabled to make a more accurate estimate than
3438 when I was working the matter with Messrs. Johnston and Hider, who had no more information about the work as it was done, than I had myself; so that my estimate as of March 31st 1901, made with Mr. Wingfield, I consider much more accurate and reliable than my estimate made as of September 30th 1902.

Q. Do you consider your estimate of September 30th 1902 inaccurate; you have sworn to it, hav'n't you, and sworn also that you made ample investigation before making it?

A. I think I did yes sir.

Q. Now, in point of fact, hav'n't you in that estimate of September 30th 1902 when you say that high prices as to cement prevailed, you have placed this concrete in the reservoir lining at $10.00 per cubic yard, while in your later estimate, when you say prices of cement were very much lower, you have placed the same work at $12.13; are not those facts, Mr. Ludlow?

A. I am not certain as to the figures until I find them; I presume they are correct though. That difference, while your inference is apparently correct, yet if the examination is pursued, it will be seen that in the assumption as to the character of the concrete lining and bottom in the September 30, 1902 estimate, it was assumed that

a much thicker bottom was used than in the estimate of March 31st, 1901; that being the case, it would naturally be at a much less unit cost per cubic yard. Further, as a matter of fact the two estimates show that while the estimate of September 30th 1902 was $10.00 a yard, the total allowance was $17,000.00, whereas in the estimate of March 31, 1901 the allowance is $14,158.80, showing that the change was made owing to more information as to the character of the bottom, it being impossible at first to know just how the bottom was placed.

Q. So that in this item, your estimate of September 30th
3439 1902 is as you admit by your last estimate excessive some $2500.00 or $3000.00 wasn't it?

A. In that particular item, I think the estimate made last is the more probably correct one.

Q. And under the same head of "Reservoir" you made a mistake that you admit now of $3000.00 of cubic yards of excavation and embankment in your estimate of 1902?

A. I don't admit it as a mistake, but as I stated yesterday it is a matter of determination that is very difficult, and one from which no absolutely accurate conclusion could possibly be made. It is purely a matter of examination of the conditions that existed before the embankment was replaced, and in the estimate made later, I felt at the time that the correction in the number of cubic yards was proper, knowing that I had made a larger allowance in the previous estimate.

Q. And you also made a difference of $520.00 in the allowance of contingent item for bad bottom, didn't you, between the two times?

A. Yes sir, it appears so from the two estimates.

Q. It is very easy for a man to be honestly mistaken to the extent of 3000 yards in excavating that embankment over there, isn't it Mr. Ludlow?

A. I think so, yes sir; I don't think any one can swear to the exact difference in amounts.

Q. And if it is shown what actually was taken out by the contractor or the books of the company, that would be preferable of course wouldn't it?

A. Precisely.

Q. Well going back to that concrete lining of the reservoir; how thick did you estimate it in your replacement statement of September 30th 1902, and how thick in your later statement of March 31st 1901?

3440 A. As stated in my testimony yesterday, in my March 31st 1901 estimate I assumed it at about 8 inches thick; in the previous estimate, I probably considered it between 10 and 12 inches, I am uncertain as to which, but in that neighborhood.

Q. Now you make a difference of $2.13 a yard in the difference in labor in laying those two thicknesses?

A. Well not altogether in those thicknesses.

Q. Well there is that amount of $2.13 difference in your two estimates?

A. Well something like that. In the one case I estimated placing concrete by the cubic yard and in the other case by the square foot—surface measurement.

Q. Mr. Ludlow, I find in your estimate of replacement under consideration, an item for floors and roofs, all wood $1324.00 exclusive of the 16% for engineering and contingencies. How did you get at that item?

A. I took that, I think, from an estimate that had been made by Mr. William Wheeler. I examined the floors and roofs and made an estimate, and determined that the figures he had given, were as nearly correct as any one could estimate them.

Q. What did you place the lumber at per thousand in making that estimate?

A. I don't recall sir.

Q. Have you any memorandum from which you can tell us what you put lumber at?

A. I have no memoranda. Any estimate I made, would have been purely an assumption, as I would not consider it proper or practicable to make inquiries to determine the exact cost of lumber at that particular date; so that the only practicable way to fix the valuation was to consider it according to general practices that usually control in such work.

Q. Did you make any inquiries, or ascertain from any
3441 other person other than the officers of the water company what the prices of lumber that entered into this work were, on the 31st of March 1901 at Knoxville?

A. I didn't inquire of them or any one else, for I didn't consider that I could give competent testimony based upon such inquiries.

Q. Do you now know within $10.00 of what lumber was worth at Knoxville on that date?

A. Oh yes, I think I do.

Q. Well what was it worth at Knoxville at that time?

A. Within $10.00?

Q. Well I am asking now if you know what is was worth at that time?

A. I decline to state specifically what lumber was worth absolutely at that date.

Q. What price had you in mind when you made these estimates of floors and roofs?

A. I have just stated that I had no memoranda to indicate that, and have no recollection that would enable me to answer the question.

Q. Well now, as to hardware and nails, $340.00 exclusive of the per cent.; how did you estimate that?

A. I assumed Mr. Wheeler's estimate to be correct, that being a small item, and one that is almost indeterminate.

Q. And the same is true of painting and oiling $212.50.

A. Yes sir.

Q. The same is true of slate roofing? The amount being $654.00 exclusive of the per cent.?

A. It is.

Q. And of guttering and flashing $165.00?
A. Yes sir.
Q. Doors, windows and frames $426.50 the same is true?
A. Yes sir.
Q. Window and door sills $207.00?
A. Yes sir.
3442 Q. Stairs and railing $695.00?
A. Yes, sir.
Q. Railing around pit $195.80, the same is true?
A. Yes, sir.
Q. Lavatory $200.00 less $85.00, $115.00?
A. I don't think I took that from Mr. Wheeler's estimate.
Q. Well, what did you do about that?
A. I think I fixed the value of that from my own judgment.
Q. Plumbing, heating and lighting $300.00? The same is true as to the other items; you took that from his estimate?
A. Yes, sir.
Q. You took that from Mr. Wheeler's estimate?
A. Yes, sir.
Q. Felt roofing on tool house $17.50, the same is true?
A. Yes, sir.
Q. Macadam $35.00? The same is true?
A. Yes, sir.
Q. Sodding $65.00?
A. Sodding and seeding, yes, sir.
Q. Fencing Craig Street lots, $175.00?
A. The same is true.
Q. Drainage of Front Street Stairs, &c., $134.00?
A. The same is true.
Q. Now as to all of those items, you were furnished a statement by Mr. Wheeler or Mr. Kimball precisely as it appears here as to the classification, and as to the cost, except you say you think in regard to the lavatory item you didn't take Mr. Wheeler's estimate, but made an independent estimate of your own?
A. That is substantially correct for all of those items. But, they were all of very small value as compared with the total valuation, and any error made in them, one way or the other, would affect very slightly the net result of the plant, and they were of such character, that no one can scarcely, if possibly, determine exactly what those things were worth as of that particular date; the best that could be done was by an examination of them, which was made to see
3443 if the figures were reasonably correct, which they were found to be, and adopted as being as nearly correct as was practicable for me to make individual figures for.
Q. Well, how could you tell about the cost of floors and roofs without knowing what the price of lumber was at Knoxville at that time?
A. Oh, I had some idea probably what flooring was worth.
Q. What was your idea and is your idea now?
A. I have already stated that I didn't care to express it.

Q. Now you say these were small items and not worthy of much consideration?

A. I didn't say they were not worthy of much consideration.

Q. Well, you didn't give them much consideration?

A. I did.

Q. But you didn't even ascertain the price of lumber entering into the $1724.00 of roofing, did you?

A. I did not, for I didn't consider it practicable to find out what the price of lumber was as of that date, and if such inquiry should have been made, I didn't consider the testimony competent for me to give, but rather that I should base my testimony on my own judgment as to the reasonableness of those figures.

Q. Well, don't you think it altogether a proper thing for an expert to inform himself as to prices that involve local conditions?

A. I don't think it proper for an expert, particularly proper—I won't say that it is improper—but I don't think it proper or essential, to inquire of this man and that man what such things were worth at a distant date, for I think such information would be very unreliable and uncertain.

Q. Then how is he to know about it?

A. If he is an expert, he has had experience in other
3444 parts of the country and should form his own judgment in regard to values.

Q. Don't you think that local information from reliable contractors of brick and stone work, and reliable manufacturers and dealers in lumber and brick that were here on the spot would be more to the point, and more reliable than an expert's information of what may have happened elsewhere?

A. Not unless their statements were in the shape of testimony, and sworn to, and he be given the right to use them as a basis of his estimate.

Q. And for that reason, you ignore all local information and conditions?

A. I didn't seek local information from citizens, not knowing who was who, and not knowing but that the men I might make inquiry of were strongly against the water company or for it, and in either case the information given would doubtless reflect his or their feelings toward this suit.

Q. Well now, didn't you in your estimate in the Chattanooga case, seek locally, precisely the same kind of information; I am now asking you about the prices of lumber and the prices of pipe and brick and the prices for laying brick, and don't you so state in your deposition in that case?

A. I may have so stated it, but not as broadly as you express yourself. My opinion is that all that data came to me at the instance of the attorneys in the case.

Q. Well you testified that you had such data, and based your judgment upon that, as well as your experience?

A. Perhaps so, but I don't think that data was as good as my own experience in such matters.

Q. Now, Mr. Ludlow, these matters that you have characterized

as comparatively small items entering into your estimate, in
3445 this case, with the per cent. added amounts to $6335.11, do they not?

A. That is correct, sir, and if there was an error of 33 1/3 per cent. either way in that item, it would only make a normal difference in the net result, and the difference is doubtless over-come by other items, in an estimate such as this.

Q. Well so far as you can tell, there may be an error of 33% in this item, may there not?

A. Yes, sir, possibly one way or the other; it may be that much too low or that much too high; I couldn't tell.

Q. Well suppose it is that much too low, in what other items is it made up?

A. It may drift all the way through the estimate.

Q. Then you don't know of any item where it may be made up?

A. Oh, no, but I know that any error made, either in judgment or in fact, or otherwise, every estimate you have before you would be identical.

Q. Then the water company furnished these items and these prices, and you gave them all you claim on it but the lavatory it is not probable that you made any error in these items against the water company?

A. I believe that the figures given for these items are just as nearly correct as it is possible for any one to determine.

Q. Did you, at the time of making your estimate, have before you the testimony of Mr. Getaz and Mr. Munding, contractors of the city of Knoxville in this record?

A. I did not.

Q. You had the estimates made by Messrs. Nixon and Brown before you upon these items?

A. I am not quite certain, sir; I am inclined to think that
3446 I did, but I am not certain.

Q. And you had their sworn statement before you as to these items?

A. I am not quite certain whether I did or not.

Q. The statement that the water company furnished you was simply a memoranda of a sworn statement, wasn't it?

A. I am not certain as to that.

Q. Well do you know it wasn't a sworn statement?

A. No, sir, I do not.

Q. Well the statement that was furnished you, was it sworn to, or purported to be sworn to?

A. Oh, I don't know, sir; I presume the items were from some of the testimony in the case,

Q. I notice that you have estimated 266 hydrants at $30.00 each making $7980.00, with the 16% added to wit: $1276.80, the sum of $9256.80. Now assuming that there were only 247 hydrants at the date assigned to this estimate, how much should this item be reduced on your own basis of prices of hydrants?

A. $661.20.

Q. Now you have figured into your estimate in this case 9—20

inch gates and boxes at $125.00 each, making $1125.00 without the 16% added, and with the 16% to wit: $180.00 making $1305.00. Now you have stated in your former deposition on page "41" that you figured 20 inch gates and boxes in your Chattanooga estimate at $90.00 each, have you not?

A. I presume so, yes, sir.

Q. Now what would be the difference on this item, figuring the gates and boxes at the same price that you did in the Chattanooga case?

A. It would be the difference between 9 times 90 plus 6% and 9 times 125 plus 16%, which amounts to $446.40, if — not mistaken in the calculation.

3447 Q. Now you figure into your present estimate one 18 inch gate at $100.00. At what price in the Chattanooga case on the same basis of reduction that we have adopted in the 20 inch gate and box would this gate be figured in the Chattanooga case?

A. I hav-n't adopted any basis of reduction. The 20 inch gate would not apply to the 18 inch gate.

Q. Well the 18 inch gate is some per cent. higher in your estimate here over your Chattanooga estimate as the 20 inch gate is?

A. Not necessarily at all; it may or may not be.

Q. Well you happen to have had no 18 inch gate in the Chattanooga estimate, so I cannot verify you on that point. We will pass to the 16 inch gates. You have figured 16 inch gates and boxes into your present estimate at $75.00 each. You figured gates and boxes of this size in the Chattanooga plant at $50.00 each. Now give the difference between your estimate in this case at $75.00 and your estimate in the Chattanooga case upon the basis of $50.00 each for gates and boxes?

A. It would be the difference between 16 times $75.00 plus 16%, and 16 times $50.00 plus 6%, which is figured by Mr. Nixon to be $544.00, which is probably correct.

Q. Now Mr. Ludlow, you figured 14—14 inch gates in the present plant at Knoxville at $60.00 each. You figured like gates of the same size in the Chattanooga plant at $40.00 each. I wish you would show the excess of your Knoxville estimate over the same number of gates estimated at the Chattanooga prices, and fixed by you in the estimate of that plant?

A. That would be the difference between 14 times $60.00 plus 16% and 14 times $40.00 plus 6%, which is, according to Mr. Nixon's calculation $382.40.

3448 Q. Now going to the 12 inch gates; you have figured 41 of these into the Knoxville plant at $40.00; you have figured the same gates into the Chattanooga plant—same size gates into the Chattanooga plant—according to your deposition heretofore taken, at $30.00 each. Will you show the difference on this item made upon the two bases?

A. It would be obtained in the same way as the previous answers, which according to Mr. Nixon's calculation would be $503.20.

Q. Now passing to 10 inch gates. You have figured 28—10 inch gates into the Knoxville plant at $33.00 each; you figured the same

size gate into the Chattanooga plant at $23.00. What is the difference computed on the different bases on this item?

A. It would be determined in the same manner as above, and amount, according to Mr. Nixon's calculation to $266.70.

Q. Passing to 8 inch gates and boxes. You have figured 63 of these into the Knoxville plant at $23.00 each. You have figured like gates into the Chattanooga plant at $18.00 each. What is the difference on this item?

A. It is determined in the same manner as the previous answers which according to Mr. Nixon's calculation is $478.80.

Q. Well now in your present estimate you figure 6 inch gates and boxes—185 of them—at $15.00 each; you figure the same size gates and boxes in the Chattanooga plant at $13.00 each. What is the difference on this item?

A. It is determined in the same manner as my previous answers, which according to Mr. Nixon's calculation is $665.70.

Q. In your present estimate you figure 85—4 inch gates and boxes at $11.00 each; you figure like gates and boxes in the Chattanooga plant at $9.00 each. What is the difference on this item?

A. It is determined in the same manner as my previous
3449 answer which according to Mr. Nixon's calculation is $273.70.

Q. In your present estimate, you figure 83—3 inch gates at $9.00 each; in your Chattanooga estimate you figures 3 inch gates at $6.00 each. What is the difference on this item?

A. It is determined in the same manner as my previous answer, which according to Mr. Nixon's calculation is $338.64, and I wish to say in this connection that I think your assumptions are incorrect, as you are not comparing the same articles in the two cases.

Q. Well why do you say we are not comparing the same things?

A. I have no explanation to make sir.

Q. Well, will you not explain why you say that?

A. No sir, I will not.

Q. You don't mean to say that the boxes were not included in the Chattanooga estimate?

A. I simply decline to mention the difference, or the error which I think you are making. I may be wrong General, and you may be right sir, but I simply state my opinion that it is not a proper comparison.

Q. Now passing to 2 inch stop-cocks or gates; I believe the smaller gates are called stop-cocks; you have estimated 60 of these in your present estimate at $6.50 each, and you estimated the same size in the Chattanooga case at $3.00 each. What is the difference on this item?

A. It would be determined in the same manner as the others, which according to Mr. Nixon's calculation is $261.60.

Q. Now Mr. Ludlow, I find a number of stop-cocks and boxes of smaller sizes ranging from 1½ inches down to ½ inch for which I cannot institute any comparison with your charges for like work in
the Chattanooga case, because it is not given in your evidence
3450 in that case. I will ask you however, if the prices for these sizes in your estimate in this case are not on the same plane as the prices which you have given for the other estimates?

A. I could not tell sir as these prices were made without any recollection whatever as to Chattanooga prices, and if there are no corresponding prices in the Chattanooga estimate, I couldn't tell what comparison might or might not exist between them.

Q. Well you attempted to fix the prices on the same plane for all sizes; that is the point I am after?

A. Yes sir, they were all fixed on the same plane.

Q. Well now, Mr. Ludlow, we will pass to the question of pipe. How was the price of cast iron pipe on the 31st of March 1901 as compared with previous dates?

A. At that time cast iron pipe was at a comparatively low price.

Q. Well looking to previous dates, how much lower was it than in 1900, 1899, 1898 and 1897? if any?

A. I couldn't give the exact difference in price between those dates, that is from memory.

Q. Well, was it as much as $5.00 lower?

A. There is no absolute controlling price of cast iron pipe for any of those years. There are conditions which cause fluctuations in prices other than the price of raw material entering into them, and the prices at different places were based upon local conditions largely, such as competition, or the absence of it, and what could be obtained for pipe purchased, and in my judgment there can be no price stated that can be a ruling price for any of those years.

Q. Have you recently changed your opinion about prices
3451 of cast iron pipe during those years, or are you of the same opinion as you have always been?

A. Well I don't know; I have more experience to-day with the cast iron market than I had four or five years ago, and any idea I expressed four or five years ago, I should think would be not so good as my present opinion about that matter.

Q. Well now, didn't you state in your former deposition that the prices along about the dates that I state to you had gone as low as $13.00 per ton?

A. Perhaps I may have stated that, at the foundry, but that was not the price at which users bought pipe where it was to be used.

Q. Well about what was the price in 1900, 1899 and 1898?

A. I don't recall sir.

Q. Don't you know the prices during those years?

A. I hav-n't them in mind, no sir.

Q. But they were considerably higher, you think, than on March 31st 1901, during those former years; or did you state that?

A. No, I don't believe they were higher; I am not certain just how the prices compared at those later times.

Q. Well don't you know the price in 1900?

A. Price of pipe?

Q. Yes sir.

A. Where?

Q. The ruling market price?

A. I said there was no ruling market price of pipe in 1900 at different places.

Q. Do you know what it was selling at as the net price at competitive bidding at the various places during those years?

A. I have no memoranda of it, and wouldn't undertake to state that from memory.

Q. Have you any knowledge of what it was selling at at competitive bidding in 1901, about the date of our estimate here, at different places?

3452 A. I have no memoranda of any competitive price at any particular place, and would not undertake to state from memory.

Q. Don't you know that it was bought by your associate Mr. Wingfield at three separate dates in the Spring of 1901 at open, competitive bidding, to be delivered at the city of Augusta at a price that would make pipe at Knoxville, substituting the freight rates to Knoxville, in place of the Augusta rates, $20.00 per ton. Didn't you and Mr. Wingfield discuss that matter?

A. I don't know such to be the fact. The price of pipe at Augusta would not fix the price of pipe at Knoxville, simply by changing the freight rates.

Q. Did you and Mr. Wingfield discuss that sale at all in settling the price of pipe?

A. I am not certain that we did. I had fixed, so far as my judgment was concerned, the price of pipe before I saw Mr. Wingfield here. It may have been discussed; I don't know.

Q. You may have discussed it?

A. If I had had proper evidence contrary to the knowledge I already had, perhaps I might, but I would not have done so, as you express it, on account of the statements you are now mentioning.

Q. You had before you the fact of the sale, at about the same time, at Nashville, at $18.00 per ton at competitive bidding, didn't you?

A. I had not, except in a general way, until Mr. Brown mentioned to me about a sale of pipe being made either at Knoxville or Nashville.

Q. You didn't inquire into that?

A. I did not, because I do not think that would fix the legitimate and logical price at Knoxville.

Q. How did Mr. Wingfield say he got the price of pipe?

A. I don't recall sir.

Q. How did you get it?

A. I got it by comparison. I had inquired very carefully

3453 into the price of pipe as of September 30th 1902 at the time that deposition was made, or near a date close by, and I had very clear recollections and knowledge of the price of pipe at that time, so I was satisfied that the price I assumed in my former estimate of September 30th 1902 was correct, and I undertook to find the value as between these two dates by the best means at my command, and concluded that the difference in cost of pipe for those two dates at Knoxville would be $8.00 a ton, which would make the price as of March 31st 1901 $24.00.

Q. Well when you were here making that September 30th esti-

mate you made a sort of a tentative estimate as of March 31st 1901 but wouldn't put it in, didn't you?

A. I don't recall whether I did or not.

Q. Well didn't you so state in your former deposition?

A. If I so stated it, that is correct.

Q. What did you state in that as the price of pipe?

A. I don't remember now.

Q. Didn't you so state it?

A. I may have so stated what I thought was correct at that time.

Q. Well if your memory is so bad that you cannot tell what you fixed it at for the purposes of that estimate at that time you may have forgotten a great deal what you heard about the prices of pipe two or three years ago, may you not?

A. I told you awhile ago that I could not give you the price of pipe two, three or four years ago. If your inquiry wishes to determine what I fixed the price at in my former deposition, the deposition will show what that price was, and I am willing that it should be referred to, and if any discrepancies are found between that and my present statements, would be glad to endeavor to reconcile

3454 them.

Q. Now Mr. Ludlow, don't you think that about the best and only way of fixing the price of a commodity, is to find out at what the commodity is being sold at about that time?

A. There are some articles of trade which you can determine the price anywhere by simply knowing the difference in freight rates, but that condition does not obtain in cast iron pipe, and has not so obtained for several years.

Q. There were competing companies in 1901, wasn't there?

A. Yes sir and are now.

Q. And if sales were made at Nashville and Augusta and other points at competitive bidding, it would show that they were competing companies?

A. Yes sir there are competing companies, and if the prices are made low, it might be due to the fact that the freight rates of the competing companies were very nearly the same. In such case, the price named, would be such price as the foundrymen were satisfied to take for their pipe at the foundry plus the freight rates; on the other hand, if the freight rates of the competing companies were different, the company having a lower freight rate would very likely make his price, not based alone on what he was willing to take at the foundry, plus freight rate, but with the freight rate just a little less than his competitor could reach the same trade.

Q. Well at any rate, where there were competitive biddings the price would be fixed by the price at which pipe was furnished?

A. At that particular point, yes sir. If competitive biddings had taken place in Knoxville at that time, it would have fixed the market value of the pipe as of that time at Knoxville.

3455 Q. Of course, provided the quantities were similar, sizes &c.? Now Mr. Ludlow, you figure onto the price of pipe in the Chattanooga case, 6% for contingencies and engineering, didn't you?

A. I believe so, yes sir.

Q. You figured on 16% engineering and contingencies on the price of pipe here, didn't you?

A. Not specifically on the price of pipe. I figured 16% as the proper percentage to run through the entire estimate, and not on specific items.

Q. Well what would you figure as a proper per cent., taking pipe alone to be figured onto for engineering and contingencies?

A. I have never undertaken to furnish it in that manner and could not do so now.

Q. But you did figure 6% in the Chattanooga case and 16% in this case, on the whole estimate in both cases, did you not?

A. I figured 6% as the proper basis to run through the entire Chattanooga estimate as it was made up, and 16% as the proper percentage to run through the entire Knoxville estimate March 31st 1901 as it was made up.

Q. Now what does 16% on the price you have fixed for pipe amount to in this case, and what does 6% amount to, and what is the difference?

A. At 6% the percentage would amount to $8821.44; at 16% it would amount to $23,523.84. The difference would be $14,702.40 which is 10 per cent.

Q. Make a like statement as to the amount you have estimated specials at, to wit: $5880.96?

A. That would be $588.10 between the 6% and the 16%.

Q. Now assuming that the price of pipe at Knoxville is to be fixed at any amount per ton less than $24.00 at which you and Mr. Wingfield have fixed it; how much for each dollar on the
3456 ton reduction would it be expressed in dollars?

A. Upon your assumption the reduction would be $3126.00 plus 16% which would be $980.16 approximately, or a total of $7106.16 for each dollar of reduction on the ton.

Q. So that if pipe should be placed at $20.00 a ton at Knoxville, there would be an aggregate reduction on account of pipe, without the 16% of "4" times $6126.00 or $24,504, would there not?

A. Those figures appear to be approximately correct, yes sir.

Q. Now Mr. Ludlow, I notice in your estimate in this case you have placed in connection with Mr. Wingfield the laying of pipe as follows; while in the Chattanooga case you have placed it as stated in the parallel line:

	Knoxville.	Chattanooga.
Laying 20 inch pipe.....	60 cents.	50 cents.
" 18 " "	50 "	42 "
" 16 " "	43 "	33 "
" 14 " "	35 "	25 "
" 12 " "	27 "	18 "
" 10 " "	22 "	15 "
" 8 " "	18 "	12 "
" 6 " "	16 "	10 "
" 4 " "	12 "	9 "
" 3 " "	10 "	7 "

These are the correct figures at which you placed the laying of pipe at Knoxville and Chattanooga respectively?

A. I presume they are. If the records so show it, they are.

Q. Well I will ask you if the record doesn't so show it in order that we may be at no misunderstanding?

A. Yes sir, I admit that they are correct.

3457 Q. You then admit that they are correctly stated?

A. Yes sir.

Q. Now what would be the difference in this item of laying cast iron pipe, computing the laying of the quantities of the several sizes at the Chattanooga price and deducting the same from the amount allowed for the Knoxville price?

A. It is merely a matter of multiplication and division General, and according to the computation made by Mr. Nixon it appears to be $17,276.54, or the difference between $54,119.80 at Knoxville and $36,843.34 at Chattanooga prices.

Q. Now the Chattanooga prices include rock excavation for the trenches, do they not?

A. My recollection is there were no rock there. The only place I heard of the probability of rock, was in one place, and that amounted to so little that no rock allowance was considered necessary, so that these prices would not include any allowance for rock according to the best of my recollection.

Q. If there were rock at Chattanooga, no allowance for these prices for laying pipe was made on that account?

A. If there had been any evidence of the probability of rock being encountered in laying the pipe, an allowance would have been made for such rock in making up this estimate.

Q. At any rate, you made no additional allowance in the prices of laying pipe—in your estimate of laying pipe at Chattanooga?

A. I consider these prices were made for earth excavation with no amount of rock sufficient to take into account.

Q. There were in fact some rock to be encountered in the Chattanooga case, weren't there?

A. My recollection is that I was advised by the city engineer that there was a probability of rock at only one place which the pipe lines covered, and that to a very small extent, that is my recollection.

3458 Q. Didn't you state in your formed deposition "Was there a few places," meaning several places in which rock were encountered?

A. Well I think I did; it was a matter of recollection at that time and this, and one perhaps is as correct as the other. My recollection is there was only one place in which rock were encountered there.

Q. Well now you figure on 6% for engineering and contingencies to your pipe laying in Chattanooga, and 16% onto your allowance at Knoxville prices in this case, did you not, as you did on the other items?

A. That is correct sir.

Q. The effect of which was to put 10% more for engineering and

contingencies on the Knoxville prices than on the Chattanooga prices?

A. Well under that heading, it was to that effect.

Q. Well now Mr. Ludlow, you have figured an item of rock excavation for trenches in pipe laying in your estimate at Knoxville at 2871 5/10 cubic yards at $2.00 per yard, making $5743.00 which, with 16% added amounts to $6661.88?

A. Yes sir.

Q. Now that item is in addition to the cost per foot of laying already given above, is it not?

A. That is in addition to the sum total made up from unit prices per foot for laying, yes sir.

Q. There is no corresponding item in the Chattanooga estimate?

A. I think not sir.

Q. How did you get your estimate of the yardage and of the price of $2.00 per yard for this work?

A. I think I took the quantities from the figures that were furnished me from some source, probably from Mr. Kimball, or they were based upon information obtained from him, and the
3459 price per yard I assumed from my experience, knowledge and observation of taking rock out of pipe ditches.

Q. You knew nothing about what such work could be done for here at Knoxville, did you?

A. Yes sir, I thought I knew, and I thought it would cost $2.00; that is still my thought.

Q. The Water Company only claim $1.75 don't they?

A. I don't know sir.

Q. And do you know it to be a fact that plumbers, who were in the habit of doing such work, state that such work can be done at $1.00 a yard?

A. I don't know sir.

Q. So you don't know about the local prices here?

A. I don't know what a local man says it can be done for, or what a local man says he has done it for.

Q. Well I see in restoring street services you estimated 205,377 feet of macadam at 10 cents, making without the 16% for engineering and contingencies $20,537.70 and with the 16% $23,823.73?

A. Yes sir.

Q. What is the amount of the footage of your cast iron pipe as estimated in this case?

A. It appears to be 287,148 feet.

Q. Now you have an item of 16,404 feet of brick pavement restored at 50 cents, making in addition to the above for restoring brick pavement $8202.00 without the 16%, and with the 16% the sum of $9514.32?

A. Yes sir.

Q. Now you have therefore an aggregate of macadam and brick pavement 221,781 feet charged at the above prices. Now I will ask you what the difference will be if you calculated the restoration of macadam only and no brick on one-half of the length of streets

covered by cast iron pipe, to wit; 143,574 feet as claimed by Mr. Wheeler himself in his statement of fair construction cost
3460 in this case, and at 6 cents per foot as claimed by him in his deposition in this case, and also in the statement furnished you and Mr. Wingfield, and what would the difference be?

A. The difference appears to be $24,723.61.

Q. And that with or without the 16%?

A. That is with the 16%.

Q. Now Mr. Ludlow, we pass now to wrought iron pipe which I notice you estimate 3½ inch pipe at 43 cents laid. I wish you would just give us an analysis of that estimate, showing the amount that you give as the price of pipe, and what for laying, just as you made it up?

A. I have no analysis made sir; my memoranda only shows the prices set down in this estimate, which has already been filed.

Q. Did you make no analysis of the cost of pipe, and the cost of laying, and the elements entering into these several calculations as to wrought iron pipe?

A. I made no record of any sir.

Q. Well did you make any?

A. I probably had something in mind as to the elements that entered into it.

Q. Can you tell now what you did have in mind on this subject?

A. I cannot now.

Q. Have you anything in mind now?

A. I can only state I had in mind the data and knowledge sufficient to believe these prices to be fair and proper to be included in this estimate.

Q. But you made no analysis that you can now state?

A. None that I will now state.

Q. You cannot tell what you allowed pipe at?

A. Not at present, no sir.

Q. You cannot state what the list prices of pipe were, or
3461 what discounts you deducted?

A. I cannot sir.

Q. You cannot tell how much you allowed for ditching for this size pipe, or refilling?

A. I have no memorandum from which I could answer that inquiry.

Q. Now I notice you have an item under this head of rock excavation 750 cubic yards at $2.00 per yard $1500.00. That was an additional item to anything that was done in the Chattanooga case, just like the similar item of cast iron pipe, wasn't it?

A. I think so, yes sir.

Q. What is the aggregate amount in feet of the wrought iron pipe that you estimate to be in this plant?

A. It appears to be 75,010 feet.

Q. Now you have estimated restoring street surfaces on this wrought iron pipe as follows:—41,293 feet macadam at 10 cents per foot, and 894 feet of brick pavement at 50 cents per foot. These

are the same prices that you fixed for restoring macadam over cast iron pipe, are they not?

A. They are sir.

Q. Are the same width ditches required in the laying of these small sizes from 3½ inches down to ½ inch pipe, as in laying cast iron pipe from 20 inches down?

A. No they will probably average a few inches less.

Q. Well isn't 18 inches or 2 feet sufficient for laying the small pipe?

A. Well, as a rule it is, but it will tear out the macadam and brick pavements wider than that.

Q. Well there is no calking required in laying this small pipe is there?

A. No sir.

Q. But you have ciphered for the restoration of trenches for both sizes—for 20 inch pipe and ½ inch pipe hav-n't you?

A. Yes sir, I did that for the reason that in laying these service pipes, they are laid across the street instead of in the direc-
3462 tion of the street, and a little more care must be taken in restoring the surface over ditches that are dug across the street, than a ditch going down parallel or in the direction of the street.

Q. Then is this the service pipes that you embrace in this estimate of wrought iron pipe?

A. Well I take it to be; I think they are service pipes; I am not sure. Some of it, I recall now are not service pipe, but I think the bulk of it is.

Q. But you have already allowed for the services in a separate item, hav-n't you?

A. Yes sir, this seems to be other than service pipes.

Q. My question is hav-n't you allowed already for services in a separate and distinct item?

A. Yes I appear to have done so.

Q. Now hasn't it reduced itself to this, that you do not know whether this pipe that we are talking about here, is for service pipes or other pipes?

A. Well I don't think it makes much difference; I don't think your question implies the exact situation. My belief is that a portion of this small pipe is used as an auxiliary to the mains to connect up and supply a number of service pipes. That is my view of the purpose of that small pipe.

Q. But when you were talking about the macadam being crosswise of the street, you were talking about service pipes?

A. Yes sir, I had service pipes in mind then.

Q. Well then that situation wouldn't apply then in the case of the other pipe?

A. No sir I think not.

Q. Now assuming, as I assume to be shown by Mr. William Wheeler in this case, that nothing was claimed for restoring streets

either macadam or brick over wrought iron pipe in this case,
3463 what would that reduce, with the 16% added, your estimate in this case, striking out the allowance made by you and Mr. Wingfield on that account?

A. It appears to be $5424.51.

Q. What width of trenches have you estimated for laying cast iron pipe; or did you base your estimates upon in this case?

A. I estimated upon the usual practice in laying cast iron pipe.

Q. Well what width of ditches did that imply?

A. I have no memoranda. I took it upon the usual practice required for laying different sizes of pipe and the cost of same.

Q. Did you have in mind, at the time of making this estimate any particular width of ditch for the different sizes of pipe?

A. I think not, sir.

Q. Did you have in mind any particular width of ditch for laying wrought iron pipe?

A. Not in inches and feet. I had an idea of the width required to lay the different sizes of pipe.

Q. Mr. Ludlow, at what price per filter do you estimate the 18 Warren filters in this case, exclusive of the 16%, and also including the 16%?

A. The figures in my estimate appear to be $1866.66 without the 16% added and $1933.33 with the 16% added.

Q. Now I notice you have allowed engineering and contingencies on these prices of the filters. Suppose the filters were put in place by the Filter Company, not only delivered f. o. b. cars, but actually carried to the filter plant and installed and their efficiency shown and paid for; oughtn't that percentage to be disallowed?

A. No, sir, in making up an estimate, I should make up an estimate of the cost of the entire plant, and add at the end the
3464 16%. The only difference is in the estimate as submitted, the 16% has been added to each item in order to separate the item, but the intent and purpose was that the 16% was an allowance that should run through the entire calculation, the same as though the individual items were calculated without the 16% and their sum determined and 16% added to the whole result.

Q. In the Chattanooga plant there were 46 filters wer-n't there?

A. I don't recall; it wouldn't make any difference whether there were 36, 46 or 56 with this case. According to the deposition in the Chattanooga case there appear to have been 20 National filters and 26 Jewel filters.

Q. Well those were steel filters with closed tops and made to work under pressure as well as gravity weren't they?

A. My recollection is that they had been old steel tanks that perhaps were originally made for pressure purposes, but had been turned to the use of gravity filters.

Q. The filters here are open top, and a less expensive pattern ar-n't they?

A. Well I think the wooden tubs are less expensive than the steel tubs, yes, sir.

Q. Now in the Chattanooga case, you estimated the Jewel filters at $1000.00 each, didn't you?

A. That appears to be correct, yes, sir.

Q. And you estimated the National filters at $1500.00 each, didn't you?

A. Yes, sir.

Q. And added 6% to those prices?

A. That is correct. I don't think the filters there were the same diameter as these nor the same size in other respects.

Q. Can you give the dimensions of the Chattanooga filters?

A. No, sir, but my recollection is they were smaller than these.

3465 Q. What was the capacity of the plant at Chattanooga?

A. I don't recall, sir, what the net total capacity of the Chattanooga filter was.

Q. It was a good deal larger than this wasn't it?

A. I don't know, sir; the cost in the Chattanooga deposition is somewhat more than in the Knoxville plant, so I judge they were of considerably more capacity.

Q. And that notwithstanding the fact that you estimate the filters lower in the Chattanooga case than in the Knoxville plant?

A. And for the reason that the unit price between the filters would not be comparable at all, for I am quite certain that they are of different sizes.

Q. Well you keep saying they were different sizes; can you state what sizes they were?

A. I cannot state positively, but I think the sizes there are very much smaller, and they are not Warren filters at Chattanooga, but a different type.

Q. I see you have under the head of Boilers High Service Station Manning Upright Boiler and connections $1140.00; Return Tubular Boiler and Connections $1025.00, these amounts being without the 16% added. How did you get those figures on those boilers, Mr. Ludlow?

A. Those figures we took from the figures furnished by Mr. Wheeler, which we presumed to be the approximate cost of installing them, and we had no way of getting at figures which would be any more satisfactory or reliable, if as much so.

Q. So you accepted the statement of Mr. Wheeler?

A. Yes, sir, after considering the character and size of the boilers, we determined that those figures were as correct as any figures that could be made.

Q. Is the same true with reference to the pumping engine at the filter station?

3466 A. Yes, sir, the same is true there.

Q. Now, Mr. Ludlow, have you made in this case any allowance for the fact that rock excavated at the engine pit could be there used again to advantage for concrete purposes?

A. I have had it in mind, but I don't think that it could be made of very much value for that purpose, for as a rule at the time the rock are excavated they are not ready to use it for concrete purposes,

and perhaps there is no place to store it, and even if there was, under ordinary conditions, it is about as cheap to use the rock for other purposes, such as filling than the regular macadam stone.

Q. Now, Mr. Ludlow, didn't you in your deposition at Chattanooga state that that was a very material consideration with reference to rock excavation, that it could be used in work on the place, and that it would really compensate for the excavation?

A. I think it was so in that case, for they had lots of room to do all their work, which wasn't the case here, and I don't think they had macadam rocks obtainable there as here.

Q. Well there is as much room, as much country and air around Knoxville as at Chattanooga, isn't there?

A. Not as much room around the station for storing rock as at Chattanooga.

Q. In regard to that reservoir, Mr. Ludlow, there seems to be so much difficulty about estimating with accuracy the excavation and embankment which you have at two different dates made a difference of 3000 cubic yards, and also as to the contingent item on which you have made a difference in the two estimates of $520.00 and on the lime and concrete you made a difference of $2500 to $3000. in your two estimates. Isn't it better to make the estimate by the number of gallons; so many thousand dollars to the million gallons of the reservoir; isn't there a rule of that sort?

3467 A. There is no such rule, no, sir, neither can there be any such rule ever laid down to fit different situations.

Q. Did you ever hear of such rule as that of estimating the cost of a reservoir?

A. Never heard of any such rule to my recollection.

Q. Now isn't there a well recognized rule among engineers by which you estimate the cost of a reservoir at about $3000 to the million gallons?

A. No, sir, I don't think that any such rule is recognized by engineers. I think a man would be very careless to undertake to make calculations by such a rule regardless of conditions.

Q. Then you wouldn't think much of an engineer that would undertake to make such?

A. No, sir, I would not. He might have the same class of reservoirs in mind where the same conditions existed, and may formulate a rule in his own mind of that character and think it was right, but I wouldn't be disposed to accept it as representing good practice.

Q. Then he might have sense, but that wouldn't show it?

A. General, I don't like to be personal in my reply, sir.

Q. What is the ordinary life of a water plant? That is as estimated by engineers?

A. I think I thoroughly covered that in my previous deposition.

Q. Well I want it in this connection?

A. I think I have already covered that in my previous deposition in this case. I should consider the useful life of a water works plant, as a whole, to be 40 years.

Q. Now what is the life of a pumping engine for such a plant?

A. That is covered in my Chattanooga deposition, and
3468 carefully thought out and made a memoranda of, and I should prefer to refer you to that memoranda. I will answer that in the average case, it is about 20 years, depending upon the character of the engine, and the character of the work which it has to do.

Q. What is the life of filters, such as are employed in this plant?

A. I don't think sir that there are any very definite ideas as to the life of filters. It would merely be a guess or an individual judgment, as the use of filters has not been long enough to determine very accurately just what the life of the filters are. I should not think however, that it would be necessary to provide for a renewal of the filters for a less period than 30 years, unless, perchance, they should be superceded by some one type of filters, or unless for some economic reasons they were replaced by others.

Q. And what would you consider a fair life of meters?

A. I could hardly answer that question, as they are under constant repair, and the little repairs made from time to time can keep meters in operation for quite a long period, and I don't have in mind at present what the relation of that repair account is to the cost of the meter; therefore I am not prepared to say what the useful life of a meter should be counted at.

Q. Can you give any estimate on that subject?

A. I prefer not to sir.

Q. What about the life of hydrants?

A. Why I think the useful life of hydrants is very long; it may be as long as cast iron pipe possibly, but I think they should be taken in the neighborhood of 30 or 40 years.

Q. Since you have mentioned it, what is the life of cast iron pipe?

A. That is an unknown quantity, dependent upon many
3469 local conditions; first, the character of the pipe itself and its manufacture and coating, and the character of the water which it carries, and the character of the soil in which it is bedded, and the chance it may have to deteriorating influences, such as electrical currents &c., but I should give as my judgment, in the average case, for the purpose of computation and comparison, in the neighborhood of from 50 to 60 years. It may be more than that, and it may be less in many cases.

Q. Now Mr. Ludlow, your statement of replacement in this case, contemplates, as I understand, the restoration of this plant, and all the parts of this plant named in this estimate absolutely new at the date stated, to wit; March 31st 1901 doesn't it?

A. It does, yes sir.

Q. Now there would be necessarily a difference between the value of the physical plant at that date, absolutely new and the value of the plant composed of the material actually in at that date, which had been for some time in use, would there not?

A. There would be, in some respects, a difference in the physical value.

Q. Now in the Chattanooga case, you ciphered off certain per cents on account of the deterioration of the materials that were

actually in the plant as compared with those as you estimated going in new, did you not?

A. I believe I did.

Q. Well in the case of pipe, and say of the pipe in this plant say it had been in the ground an average for a term of say 12 to 15 years. Would you cipher off, estimating the life of the pipe to be 50 or 60 years or less, as you state, something like one-fourth of its value for depreciation, wouldn't you?

A. Not in determining its physical value as of that date,

3470 I shouldn't.

Q. Let's see what your rule is, and I will read it from your deposition in the Chattanooga case: "Q. Please explain your deduction of 16% from your valuation of the cost of the pipe system? A. In making my calculations originally I presumed on everything being new, new pipe to be laid to day, taking up the improved services, and arrived at the cost of laying that pipe to-day; as a matter of fact this pipe has been in the ground various periods; some of it for a long term of years, the bulk of it for ten years or more; considering that the fair life of cast iron pipe should be taken as 60 years, which I think is as long as we can reasonably expect cast iron pipe to remain in a useful condition, I deduct one-sixth, assuming that the pipe has been in the ground an average of ten years and that 60 years is its maximum life, then it must have depreciated 1/6 of its entire life; I therefore deduct 16% from what I figure to be the value of new pipe laid to-day for the value of the pipe at the present time" Now I ask you if that wasn't the rule you adopted and applied in the Chattanooga case, and if the question and answer that I have quoted are not found on page "12" of your deposition in that case?

A. That is correct, but it should be observed that in the beginning of that question and answer the purpose of the inquiry was to determine the useful life of that plant, whereas your question relating to this work, was as to the physical value of the pipe specifically.

Q. Wer-n't you considering in the Chattanooga case, in giving your testimony, precisely the same questions that you are considering here in this case, with the exception that you represented the city in that case whereas you represent the water company

3471 in this case?

A. I think the portion of my testimony you read there indicates that I was trying to determine the useful value of that plant, and in this case I have undertaken to determine a duplicating value.

Q. You say you have not undertaken in this case to determine a duplicating value?

A. I say I have.

Q. Didn't you do the same thing in the Chattanooga case?

A. I don't think I did sir.

Q. Didn't you deduct 16% from the value that you fixed as the value of new pipe in order to get at the value of the pipe that was actually in the plant in the Chattanooga case as stated in the language I have quoted above?

A. I believe I did sir; that is correct, yes sir.

Q. Well now, applying the same rule to this case, and assuming that the pipe of this plant has, on an average, been in the ground at the date of this replacement of say 12 years. Should you not deduct something like ¼ or 1/5 on account of the depreciated condition of that pipe?

A. If I were getting at the useful value of the plant I think that would be correct sir.

Q. Now would you not do the same thing in every instance where you have substituted a new for an existing thing which had been in use for sometime, such as engines, machinery and such things entering into the physical value of the plant that you have indicated should be done with pipe?

A. I should do so if I were undertaking to establish the useful value of the plant on the basis of present prices of the material which went into the plant.

Q. You mean the comparative value of the plant?

A. The useful value of the present plant as compared with a new plant based solely upon the prices which obtained at that
3472 particular date, regardless of the actual value which the plant might represent from other considerations.

Q. Now in regard to the engines in the Chattanooga case; didn't you make a very considerable deduction from your estimate of the price of a new engine on account of the difference between it and the engine actually in use there as a second ha-d engine?

A. I probably did so, yes sir.

Q. And did you not in that case deduct from a Worthington engine, which you figured in new at $35,000.00 the sum of $15,000.00 leaving as the value of the engine that was in the plant at the time, after ten or twelve years' use, as only $20,000.00?

A. You are correct, except your figures should be $27,000.00 instead of $35,000.00 and the difference correspondingly changed.

Q. Now I will ask you to look at your deposition in the Chattanooga case in which this occurs: "Q. How about the other engines? A. I figured $35,000.00 for the two. The Worthington, there is a considerable depreciation on it. It has been in use 10 or 12 years and naturally depreciated very much in value. I have placed a value of $20,000.00 upon that pumping engine. The Deane pumping engine, the same statement will apply to it as the other. Q. How much value did you place on the Worthington engine? A. $20,000.00 and $10,000.00 on the Deane Pumping engine, as that is old and somewhat depreciated in value." Does that not occur on pages "7" and "8" of your deposition?

A. I think that is all correct, yes sir.

Q. Now do you not know that some of the engines in this case which you have replaced with new ones have been in use a number of years?

A. Yes sir.

3473 Q. What do you know in regard to those engines; the Deane engine; what is its condition and how long has it been in use?

A. I don't know how long it has been in use; I know it is not being used very much at the present time, for they have capacity sufficient without it. They do not use the Deane engine except as a duplicate machine in case of need.

Q. It is an old pattern of several years ago?

A. No, it is a machine that has been built several years; I don't know how long.

Q. Why isn't it used regularly in the plant now?

A. I think it is treated as a duplicate engine to meet emergency demands, as every plant should possess, but the Worthington engine is considered the more economic and is therefore used the more in general service.

Q. Well, in a general way Mr. Ludlow, you would take off from the prices of engines and other machinery a proportion of the cost or value that you have allowed for new machinery in your replacement that corresponded to that part of the life of such machinery that had already passed in the service of the company, wouldn't you?

A. If I was figuring the actual purchase value of that engine I should do so, but I would not do so in making up an estimate, such as I have made in this case.

Q. You have not accompanied your estimate of the replacement cost of this plant absolutely new by any comparative statement showing the difference between that and the value of the existing plant, have you?

A. I have not.

Q. Mr. Ludlow in going over the estimate of Mr. Wingfield in the Chattanooga case and making your estimate, did you agree with him in the estimate you made in that case in one item out of ten?

A. I don't know sir.

Q. Don't you recollect you didn't agree with him in one
3474 item out of ten?

A. I have no recollection that would enable me to answer that question at all.

Q. Well I can hand you yours and Mr. Wingfield's estimates and let you say?

A. Unless it is important and you are compelled to have it, it will take quite a time for me to answer the question.

Mr. CALDWELL: We object to a comparison.

Sustained.

Q. Didn't you reduce Mr. Wingfield's estimate in nine cases out of ten in that case.

Mr. CALDWELL: We object to the question. The papers are the best evidence of what the witness did.

COMMISSIONER: Can't you put it in a different form; can't you say, didn't you in a great number of cases differ with him? I will hold that the witness cannot be compelled to give any figures concerning it.

Q. Don't you know Mr. Ludlow that you differed with him in a great majority of instances in your estimate in that case?

A. I differed with Mr. Wingfield very materially in our estimates in the Chattanooga case, yes sir.

Q. Have you and he differed in any of your estimates in this case?

A. These estimates were all agreed upon between ourselves; we had differences which we agreed upon. In that case they were separate and distinct estimates, and in this case we undertook to agree upon a joint estimate of value, thinking it was more rational and correct than separate and individual estimates would be.

Q. Now Mr. Ludlow is there a single instance of a valuation of anything you have made in your estimate of the replacement of this Knoxville plant, that the price fixed is not higher than the
3475 corresponding price for the same or like material or work in the Chattanooga estimate; if so please name the instance where you are as low or lower in the Knoxville estimate as in the Chattanooga estimate?

A. I am not familiar enough with the Chattanooga estimate to undertake to point out such differences as your question suggests.

Q. Well will you say that there is one single item of the Knoxville estimate that isn't higher than the corresponding item in the Chattanooga estimate made by you?

A. I will say that the estimates made in the Chattanooga case were based solely, upon conditions that existed in Chattanooga at the time the estimates were made, and that the estimates were made in Knoxville without any regard to the Chattanooga prices, and upon conditions that existed in Knoxville so far as I could learn them as of the date the estimate was made, and of the cost of materials and labor as of that time as near as my judgment would eanble me to make it.

Q. Well now, conceding that to be true, will you answer me. Have you ascertained that the value of any single item of your replacement at Knoxville is as low as the items fixed in your Chattanooga estimate?

A. I have not done so; neither do I care to neither will I, with all respect to counsel, because I am firmly convinced that no useful purpose would be served thereby, and it would be entirely inconsistent with me as an engineer to reconcile the prices of being controlling and proper prices for work at one place at different times and under different conditions with the prices that I or any other person had used at another place, at a different time and under different conditions.

Q. Now I will ask you if in your cross examination in this case if your attention has not been called to a great number of
3476 items of your estimate in the Chattanooga case, and comparison made with the same, or similar items in the Knoxville case, and if uniformly your estimates in the Knoxville case hav-n't been higher than in the Chattanooga case?

A. They have, and at repeated times during that testimony, I have stated that I was simply making those figures purely as an

accommodation and convenience to counsel, without admitting in a single instance that the cases were at all comparable.

Q. Now hav-n't you stated, and isn't such the fact, that the prices on which you place the replacement of the Knoxville plant to wit: March 31st 1901 were lower than the date when you made up the replacement of the Chattanooga plant and testified in the Chattanooga case?

Mr. CALDWELL: If he has stated it, it will appear and I don't see any reason for the witness repeating it.

Sustained.

Redirect examination by Mr. CALDWELL:

Q. Mr. Ludlow, suppose that the life of a water pipe is 60 years, and that it has been down 59 years, would that make it any less expensive to replace it with a new pipe of precisely the same kind, than if it had only been down one year?

A. It would not?

Q. When you were testifying in the Chattanooga case, were you called upon to make any estimate of accrued depreciation or merely of a current allowance for depreciation?

A. I think sir it was only for a current allowance for depreciation, as I understand your question.

Q. What did you allow for depreciation in that case?

A. At the uniform rate of 2½% a year, covering the entire plant, is my recollection.

3477 Q. Were you asked any questions about administration services?

A. Not that I recall sir.

Q. Were you asked any questions about, or give- any statements as to the elements of going value in the plant?

A. Not that I recall; I am quite certain the question did not enter the case.

Q. Were you asked any questions as to interest on capital during construction?

A. I was not.

Q. Do you recall that you were asked any questions at all except as to the physical or structural value of the plant?

A. Well that was the principal part of my testimony. I believe I was asked some few questions as to the interest to be allowed on investment, and something relating to interest account but only to a slight extent.

Q. Does your Knoxville replacement valuation represent your deliberate judgment as much as your Chattanooga replacement valuation represented it in that case?

A. It does, entirely so.

Q. You don't remember the sizes of the filters at Chattanooga?

A. No sir I don't recall the sizes. I am quite certain they were small. I am inclined to think that they were 8 feet in diameter some, and some possibly less, though I am not sure of it.

Q. Do you recall the date to which you were applying your replacement estimate in the Chattanooga case?

A. I don't recall the date.

It is admitted by counsel that the date was — ——.

Recross-examination by Mr. PICKLE:

Q. I want to ask you a question or two Mr. Ludlow.
3478 Now in regard to the amount at which you fixed, or the per cent. rather at which you fixed the annual depreciation fund, you have just stated that it was 2½ per cent. I refer you to your deposition page "37" and ask you if this is not what you there stated in the Chattanooga case: "Q. You think a depreciation fund of 2% would constitute a fund sufficient to renew the plant at the end of 40 years? A. Yes to renew it along through that period, and also to take care of the different accidents that might happen. Q. And take care of the accidents? A. Yes, I think so." Is that not found on page 37 of your deposition?

A. That is correct, and the reason I used 2 per cent. is that I considered 2 per cent. of the total value of the plant set aside in the way of a sinking fund would practically take care of a 2½ per cent. yearly depreciation, because 2 per cent. a year put into a sinking fund, in a term of approximately 40 years equals the amount of the original fund of which the 2 per cent. a year is set aside; so it is considered to be equivalent to a depreciation of 2½% a year.

Q. But you considered that 2 per cent. set apart annually settles that allowance?

A. I thought so at that time, yes sir.

Q. What do you mean by a "sinking fund" a fund to redeem the plant at the end of the time, or simply a fund that is to be provided to be expended to obviate depreciation from year to year?

A. It might be used either or both ways, according to the method of keeping the books of the plant. My idea of it at the time was that it should be a fund, that during the term of 40 years an expenditure equivalent to the original cost of the plant would be necessary
3479 to keep the plant up to its original working condition, and leave the plant at the end of the forty years in as equally a good and useful condition as when the plant first began operation. That might be all expended at the end of the forty years in building an entirely new plant, or the more practical way of course, would be to take from that sinking fund from time to time to replace certain portions of the plant that might become worn out sooner.

Q. You repudiate the idea, do you not, in your Chattanooga deposition, that there should be in addition to this depreciation, a sinking fund to redeem the plant, equivalent to the value of the plant at the end of the term?

A. I don't think I ever incorporated that theory in my Chattanooga deposition.

Q. Didn't you repudiate that theory in your Chattanooga deposition?

A. I perhaps did if it was brought to my attention. I think I clearly remember it now. I think I did on the ground that if the company who owned the works had a complete plant at the end of the 40 years, they were not entitled to have its equivalent in cash as well. In my more mature thought and knowledge of that, I think there should be some modification made of my position in that case; that is, out of consideration of the fact that a plant built in 1900, while there might be a fund set aside that would replace that plant in 40 years, or keep it in its original condition, that plant would not then be in condition to earn the revenue that it does when first started, because the town or city having outgrown the conditions of that plant, a large amount of money would have to be added in the meantime to that original construction in order to meet the changed conditions.

Q. Well isn't that precisely why that 2 per cent. or 1 to 2 per cent. is allowed to just meet conditions of that sort?

3480 A. That is allowed to keep the plant up to its present conditions, without regard to additional demands that might be made upon it from time to time, due to the increased requirements in the way of services.

Q. But you estimate this depreciation fund so as to make it equivalent to the entire value of the plant during the 40 years?

A. Yes sir.

Q. Now you don't estimate that the plant will wear out in forty years—you estimate that the pipe and buildings and hydrants and perhaps other substantial parts of it will last from 50 to 60 or 70 years?

A. That is true.

Q. Now isn't it because of its condition you speak of that the per cent. is put at from 1% to 2%.

A. That is measurably, to quite an extent correct—in estimating the life of a plant, an average of 40 years, its useful life is taken into account as well as the actual physical structures that enter into the plant.

Q. Do you not understand that the prices you fixed in the Chattanooga case, were of the date of the giving of your deposition, as indicated on the page here shown you, being page "16"?

A. From a hasty examination, I don't find the date indicated.

And further deponent saith not.

——— ———.

It is agreed by both sides, that if anything be produced in the deposition of the witness in the Chattanooga case which will indicate this date, the same may be hereafter inserted under directions of the Master.

Adjourned until Tuesday Jan. 19th 1904 at 9 o'clock a. m.

3481 WILLIAM WHEELER recalled on behalf of complainant.

Examination by J. W. CALDWELL:

Mr. PICKLE: Counsel for the City objects to the presence of Mr. Kimball during the examination, and especially during the cross-examination of Mr. William Wheeler, who is about to go upon the stand, and asks that Mr. Kimball be required to remain out of hearing of the examination and cross-examination of Mr. Wheeler.

COMMISSIONER: The objection is over-ruled and the request denied.

Mr. PICKLE: We except to Mr. Wheeler's examination except in so far as it may be strictly in rebuttal of evidence introduced by defense in this case.

Q. Mr. Wheeler, I wish to read a question and answer to you from the deposition of William Nixon, the expert witness of the city in this case which appears on page 151 of his deposition, as follows: "Q. Now Mr. Nixon, I notice while you have allowed some other per-"cents of replacement, that you have allowed nothing for what is "termed by Mr. Wheeler in his deposition as "going concern" I will "ask you why such an allowance has not been made with reference "to this plant, assuming, which is not admitted, that such an allow-"ance is proper in any case. Why has no such allowance been made "in this case? A. I have made no such allowance in this case, as "I considered it entirely unnecessary. The furnishing of the water "supply was in such demand, and the revenue or earnings from the "same in such immediate attainment, both the city and people stand-"ing ready to take the water as soon as furnished, I could see no "necessity for an allowance of "going concern" as in this case it was "ready to go when in condition to furnish the water." I ask

3482 you in the first place if the conditions and circumstances indicated in the answer are a sufficient reason for leaving out of this case a consideration of the "going value" or "going concern"?

A. In my opinion, they are not, and are only remotely, if at all related to the consideration of "going concern."

Q. Upon what did you base your estimate of "going concern" in your original deposition in this case?

A. On the value or investment in the physical property.

Q. Do you recall the amount that you reached by that method; I mean the amount of the going value?

A. As approximated by that method, and as testified to by me, it was 15% of $711,379.51, which amounts to $106,706.92.

Q. What, if any relation, has the going value to the income of a plant like this?

A. I think it has a very direct relation to the income as of the time when the "going concern" is to be valued—a necessary relation.

Q. Before going further with that aspect of the matter, what was your estimate of 15% upon the investment based upon?

A. It is based upon a judgment, which rests very largely upon my knowledge of certain determinations that have been made of the

value of the "going concern" in certain cases; I think in all the cases that had come to my knowledge at that time, either through judicial determination or through the agreement of parties in case of the valuation of the "going concern"—It was a percentage of the physical property which was within, or below the ratio of "going concern" to the physical property that had been actually determined in any of those cases, and was adopted as a simple, convenient, and as I believe, a conservative basis upon which to approximate the value of the "going concern."

COMMISSIONER: Assuming that "going concern" is a proper element of value, would it be worth more or less as the business might be profitable or unprofitable?

3483 A. I don't think the element of "going concern" is very directly affected by the consideration as to whether the business is profitable or unprofitable, but it is directly affected by the consideration of the amount of income, or the amount of business which determines the value of the going business, or the "going concern."

Q. Have you made a computation and statement of the value of the "going concern" in this case as related to income of the company?

A. I have.

Q. If so I will ask you to state it in detail.

A. I will first state that my statement and estimate is based as directly as I am now able to base it, upon my understanding of the nature of the element of "going concern" as judicially determined in other cases; that is, that in effect it is the value of an established business as a component part of the property; that is to say, of a water works property as compared with a similar or identical property, conceived to be situated in the same place, considered as of the same time, that has no business, but that is in a position to begin to acquire a business; it would therefore, it seems to me, consist directly of any excess of income above operating expenses, which the plant with its business already established, say this plant of March 31st 1901 would have, beginning at that time and from that time onward above the income of an identical plant, or assumptive plant, if you please, which at that time is starting with no business, but which has its business yet to acquire, it being assumed however that such plants are not to be considered in competition, but that each is occupying the field independent of the other, one with the business and the other without the business at the time of starting.

In the first place, I have prepared a table, which is intended to present a summary of my analysis and summation of its results, showing that so far as that analysis goes and as determined thereby, the going value would be $133,338.00. That table is as follows:

Knoxville Water Works.

Estimate of "Going Value" or "Going Concern," March 31, 1901.

Approximate Income, less Hydrant Rental, $77,026.

Years of operation.	Income, less hydrant rental.			Saving in those operating charges for the new plant that would be affected by undeveloped business—total of which = $14,885.00.		Net excess of income from existing plant or from the "going business."	Present value of net excesses of income from the going business,—discounted at 6% per annum, to the middle of each year, respectively.
	Assumed for an identical new plant beginning March 31, 1901, *without an established business.*	Existing plant *with an established business.*	Excess from existing plant.				
(1.)	(2.)	(3.)	(4.)	(5.)	(6.)	(7.)	(8.)	(9.)
1st year.....	25%	$19,257	$77,026	$57,769	75%	$11,164	$46,605	½ yr. = $45,247
2nd "	44.9%	34,585	77,026	42,441	55.1%	8,202	34,239	1½ " = 31,333
3rd "	58.0%	44,675	77,026	32,351	42.0%	6,252	26,099	2½ " = 22,513
4th "	68.9%	53,071	77,026	23,955	31.1%	4,629	19,326	3½ " = 15,714
5th "	78.5%	60,465	77,026	16,561	21.5%	3,200	13,361	4½ " = 10,240
6th "	87.0%	67,013	77,026	10,013	13.0%	1,933	8,078	5½ " = 5,836
7th "	94.2%	72,558	77,026	4,468	5.8%	863	3,605	6½ " = 2,455
8th "	100.0%	77,026	77,026	none	0.0%	none	none	7½ " = 0,000
Total "Going Value" =.....								$133,338*

* Ratio of this amount to Estimated Construction Cost, $\frac{133,338}{711,379} = 18.74\%$.

3485 In explanation of the table, I would say that I have taken as the gross income, or cash receipts of the Company for the year ending March 31st 1901, as by the deposition of

Elbert Wheeler, Treasurer.....	$88,481.39
Of which the income from hydrants was.....	11,455.00
I deduct this, leaving as the income, less hydrant rental	$77,026.39

I deduct the hydrant rental from consideration in the case of both the actual plant and the assumptive plant, intending thereby to put them in the same relation to this community, so far as affected by the hydrant contract; in other words, claiming no advantage of the existing property by virtue of the hydrant contract, Since I assume that in either case, the property would be created and start in business only in consideration of having a contract with the city.

Excluding now all consideration in increase in earnings after March 31st 1901 (whether from extensions of plant or growth in population, or for more liberal use of water by the individual taker, or from all such causes) this sum $77,026.00 represents the advantage in income which the existing plant would have at the outset by virtue of its established business over another plant identically like it assumed to have been created ready to operate and to begin to acquire its business on that date.

The corresponding advantage of the existing plant in the succeeding years would depend upon the rapidity with which such new plant might acquire and develop its business, and how soon or at what time the income derived from that business would overtake the income of the existing works without further increase,—or reach an income of $77,026.00.

My experience with and study of the business of numerous plants with which I have been connected,—with some as Treasurer, commissioner or managing director or supervising engineer, and
3486 still others in valuation proceedings,—tend to show that the development or acquirement of the amount of business or of the income normally to be expected from a new plant as differentiated from that continuous growth and development of business, which is due chiefly to increase of population or of industrial developments and to the higher standards of the use of water, requires about eight years or more after the works are ready to do business. While there is, under normal conditions, a continuous development throughout the succeeding years, it will, I think, tend to a conservative valuation of the element of the "going concern" to assume the period of development of a new business, to cover the first seven or eight years of the operation of the plant.

Taking $77,026.00 therefore, as the normal amount of income, exclusive of hydrant rental to be attained, and the first seven years after the works are constructed as the period of its attainment—making the income of the eight year normal—that is normal to the population existing at that time. I should expect the proportional amount of such income to be received by such assumptive or identical plant, starting with no business, would be as shown in col-

umns "2" and "3" of the Table, and that the excess of income, from the existing plant with its established business, at the uniform amount of $77,026.00 per annum, without any increase whatever during the period under consideration, would therefore be as shown in column "5" of the Table.

In consequence of the smaller income of the assumptive plant, resulting from the smaller amount of its business and of the water supplied during the period of its development, there would be some diminution of operating charges, which would operate to diminish the advantage which the developed business has over the undeveloped business. Such a reduction in operating expenses would apply to the following items taken from page "5" of the deposition of Mr. Elbert Wheeler:

3487	Alum	$1310.78
	Fuel	5431.15
Filter	Station	2270.28
Pump	Station	3948.19
Salaries (In part approximated at 2½% of $77026.00, say)		1925.00
	Amounting to	$14,885.40

For most of these items the reduction or saving of operating expenses for the assumptive plant would not be proportional to, or so great as the differences in income received from water pumped; nevertheless assuming—for the sake of conservancy, that such saving would be proportional to the differences of income during the period of development, the annual amounts so saved would be as shown in column "7" of the Table.

Deducting therefore from the amounts in column "5" the corresponding sums in column "7," we obtain the net excess of income for each year from the existing plant above that which would be derived from the assumptive plant, and the results are shown in column "8."

The summation of the present worth or present value of such net excesses of income afforded by the established business, discounted at 6 per cent. per annum from the date of valuation to the middle of each year, during which such excesses would be earned respectively, constitutes in my judgment a logical determination upon a conservative basis, of the value of the "going concern." This method of approximating the value of the "going concern" I deem to be conservative and in fact to produce an under-valuation thereof, because, as a matter of fact the income from water works properties in communities of normal growth and development in population and business, is almost universally, I think universally a never ceasing development or growth in the business of a properly constructed and operated plant, and the longer the period of development
3488 assumed for the imaginary or assumptive plant, the less would be the value of its business and conversely the greater by comparison would be the value of a plant identical in all other respects, but having an established or going business.

The rate at which I would expect, and which I have assumed the identical plant or assumptive plant would acquire its business beginning March 31st 1901, is shown in column "2" in terms of the percentage for each year during the first 8 years thereafter of the amount of the income, less hydrant rental which this existing plant had on that date, and these percentages are my judgment as derived from my experience and knowledge of several cases and works other than this during the first development of their business. They are works in general, I think I may say, in communities where the business has as a matter of fact developed more rapidly than such business is likely to be developed in this Southern country. That has been my experience. I may say, by way of comparison, the going value, as determined in this manner as compared with that determined upon the basis of which I originally testified, which was 15% of the estimated fair constructed cost of the plant up to that time,—that the corresponding percentage by this last determination figures out 18.74% as shown on the Table.

Q. Did you give the result of your calculation, the value of the "going concern" element in this case?

A. Yes sir, I did.

Q. As I understand you then, the calculation or the conclusion based on experience is how much as testified by you in your first deposition?

A. In the first deposition $106,706.92, and in my further deposition to-day by deducing it from income it is $133,338.00.

Q. Is there any inconsistency between the two methods of reaching this going value that you have adopted?

A. No, I think not. The first one is manifestly the more conservative determination.

Q. Is ther- anything furthe- which you wish to add upon
3489 this subject of going value in this connection, Mr. Wheeler?

A. Unless you think of something you desire to bring out further, there is not.

Q. I wish to ask you to explain a little more definitely your meaning in the question and answer on page 450 of your first deposition which has been referred to in the examination of Mr. Wingfield. Mr. Wingfield was asked in regard to the extent to which you estimated in your analysis upon the restoration of macadam. Reference was made to your answer on page 450 as follows: "Q. What did you charge for restoring macadam per lineal foot additional to the above? A. I estimated that macadam was to be restored upon one-half of the length of those streets in which cast iron mains were laid, but excluded wrought iron smaller pipes, and that the cost per lineal foot of such pipes is 6 cents, all of which is set out specifically in my analysis." What is meant there by your expression "excluding wrought iron"?

A. My estimate for macadam encountered in the actual construction was based in terms upon one-half the length of cast iron pipe laid. It was so put, not to fix and not with the intent of indicating the actual location of the macadam, but simply an approximation of its quantity, with the knowledge that the greater part of it, or rel-

atively the greater part of it was along lines of cast iron pipe. And with respect to macadam in my estimate of replacement as of September 30, 1902, in consideration of the fact that the relative amount of macadam was then much greater than when the pipes were actually laid, it was specifically stated in that estimate, page 540 of my deposition: "replacing macadam on streets covering all of cast iron mains excepting those laid in brick paved streets, and allowing for no macadam on wrought iron pipe, although there is some in fact, say 309,000 lineal feet at 6 cents &c." While these estimates were approximations based on general information and
3490 knowledge at that time, since then a determination of the actual amount of macadam over the pipe lines, both cast iron and wrought iron has been made upon the ground by Mr. Kimball, who will submit the fact in his further deposition.

Q. Mr. Wheeler, have you had any correspondence with the manufacturers of the Worthington pumps in regard to the cost of the Worthington pump installed here last by the Knoxville Water Company?

A. I have.

Q. I wish you would produce that correspondence, please?

A. I have correspondence relating both to that and to the pump which has been referred to by witnesses for the city as comparable which was furnished by the Worthington Company at Alliance, Ohio. My correspondence is dated this month of January. It is as follows:—

BOSTON, MASS., *Jan. 9th,* 1904.

Henry R. Worthington, 54 Oliver Street, Boston.

GENTLEMEN: Recalling to your attention the triple expansion pumping engine which you furnished this company under contract made in 1894 or 1895, would you be kind enough to state by letter addressed to the writer at Knoxville, Tennessee, the size, piston speed, *guaranteed capacity and duty,* together with the price of that machinery f. o. b. Knoxville, and also the price bid by you for erecting the machinery, including cartage, &c.

Kindly state also in the same letter what would be the corresponding price or value for the same machinery f. o. b. Knoxville as of March 31, 1901.

This information is desired as a basis of estimating the fair value of the company's plant as of the two dates mentioned, 1894 or 5 and 1901 respectively, in the course of hearings in the U. S. Court upon a question of reasonable water rates.

3491 I should have submitted this inquiry earlier but for pressure of other matters upon my attention, and would highly appreciate the favor of your reply at your earliest convenience.

Very truly yours,

(Signed) WILLIAM WHEELER,

Supervising Engineer, Knoxville Water Co.

Postal Telegraph Cable Company, The Commercial Cable Company.

Night Telegram.

KNOXVILLE, TENN., *Jan.* 11, 1904.

H. R. Worthington, 114 Liberty Street, New York.

In my letter January 9th forwarded through your Boston office date contract for triple expansion Knoxville engine should have been nineteen hundred. Kindly forward answers to both letters soon as possible.

WILLIAM WHEELER.

BOSTON, MASS., *Jan. 9th,* 1904.

Henry R. Worthington, 54 Oliver Street, Boston.

GENTLEMEN: I am advised that in April, 1903, you were awarded a contract for a pumping engine for Alliance, Ohio, of "4,000,000 gallons" capacity for the sum of $9195.00 according to Engineering News of April 18th of that year.

Would you be kind enough to state by letter addressed to the writer at Knoxville, Tennessee, the size, piston speed, *guaranteed capacity* and *duty* of a duplicate of that pumping engine, together with its fair price or value delivered f. o. b. Knoxville, Tennessee, and separately, the fair cost of erecting it as of date March 31st, 1901.

This information is desired for the purpose of comparing
3492 and testing certain testimony that has been offered at hearings in the United States Court upon the question of reasonable water rates.

I should have submitted this inquiry earlier, but for pressure of other matters upon my attention, and would highly appreciate the favor of your reply at your earliest convenience.

Very truly yours,
(Signed) WILLIAM WHEELER.

Henry R. Worthington, Worthington Pumping Engines and Hydraulic Machinery.

114 LIBERTY STREET, NEW YORK, *Jan.* 11, 1904.

Mr. William Wheeler, Supervising Engineer, Knoxville Water Company, Knoxville, Tennessee.

DEAR SIR: We are in receipt of a letter from our Boston office enclosing two letters from you on the subject of the Alliance, Ohio, and Knoxville, Tennessee, engines.

Our Mr. Moore advises that you 'phoned him with reference to this matter, and it is said that a statement has been made that the Knoxville engine could have been purchased, even at the time it was put in, at about two-thirds of the cost. The Pumping engine furnished by us at Alliance is practically the same engine as furnished for Knoxville, Tennessee.

You will note in the two letters that we have written you that the Alliance engine has a capacity of 4,000,000 gallons in twenty four hours as against a capacity of 6,000,000 gallons for the Knoxville engine. This, as you can readily understand, not only increases the size of the water end necessary, but also necessitated larger condenser, air pump, exhaust heaters, valves, piping, &c.

We would add that these two engines are hardly com-
3493 parable, owing to the great difference in service, the Alliance steam end especially having been made for the low steam pressure carried at that plant.

We also wish to advise you for your information that the pump horse power developed with the Alliance engine when running at a rated capacity against the maximum load, is but 230 as against 270 for the Knoxville engine under the same conditions.

Yours very truly,

(Signed) HENERY R. WORTHINGTON,
Per E. F. WALKER.

Henery R. Worthington, Worthington Pumping Engines and Hydraulic Machinery.

114 LIBERTY STREET, NEW YORK, *January 11th*, 1904.

Mr. William Wheeler, Knoxville, Tennessee.

DEAR SIR: In accordance with your request of the 9th inst. we are pleased to furnish you with the following information as to the engine supplied by us at Alliance, Ohio.

This engine was furnished under contract dated April 19th, 1901, and not 1903, as you have advised:

Size: 16 & 25 & 42x17x24.

Type: Horizontal, Triple Expansion Plunger and Ring Pattern.

Piston speed: 125′ per minute.

Capacity: 4,000,000 gallons.

Duty guarantee: 85,000,000 foot pounds per 100 lbs. coal based upon a boiler evaporation of 10# of water per pound of coal from the temperature of the water of the air pump injection.

Contract price: $9195.00 net. f. o. b. Alliance, Ohio, with services of engineer to superintend the erection.

The price of a duplicate of this engine delivered f. o. b. cars
Knoxville, Tennessee, would have been at that time prac-
3494 tically the same amount as given you above, owing to the difference in freight rate from New York to Alliance and New York to Knoxville, which off-sets the price added for the services of an erecting engineer.

The additional cost for the erection of this machine upon foundations furnished by the purchaser, would have been $1725.00.

We would have furnished all labor and the rigging necessary and hauling from the cars to the pumping station.

Trusting the above will answer your letter fully, we remain,

Yours very truly,

(Signed) HENERY R. WORTHINGTON,
Per E. F. WALKER.

Henery R. Worthington, Worthington Pumping Engines and Hydraulic Machinery.

114 LIBERTY STREET, NEW YORK, *January 11th*, 1904.

Mr. William Wheeler, Supervising Engineer, Knoxville Water Co., Knoxville, Tennessee.

DEAR SIR: In accordance with your request of the 9th inst. we are pleased to furnish you with the following information with reference to the Triple Expansion engine furnished your company in 1900, and not in 1894, or 1895, as stated in your letter.

Size: 15 & 23 & 38x20x24.

Type: Horizontal Triple Expansion Plunger and Ring Pattern.

Piston Speed: 135′ per minute.

Capacity: 6,000,000 gallons in 24 hrs.

Duty Guarantee: 95,000,000 per 1000 lbs. of dry steam consumed, based on plunger displacement.

Contract price: $12,190.00 net f. o. b. Knoxville.

We offer to erect this machine, paying for all necessary labor, furnishing the necessary rigging and the hauling from the cars to the pumping station for the sum of $1725.00, net.

Trusting the above information will prove satisfactory, we
3495 remain,

Yours very truly,

(Signed) HENERY R. WORTHINGTON.
E. F. WALKER.

Q. I notice Mr. Wheeler, that in the letter from the Worthington Company, dated January 11th, 1904, in regard to the Alliance, Ohio, engine, the following sentences occur: "The pumping engine furnished by us at Alliance is practically the same engine as furnished for Knoxville, Tenn." "You will note in the two letters that we have written you, that the Alliance engine has a capacity of 4,000,000 gallons in 24 hours as against a capacity of 6,000,000 gallons for the Knoxville engine. This, as you can readily understand, not only increases the size of the water end necessary, but also necessitated larger condenser, air pump, exhaust heaters, valves, piping, &c." I wish you would state to the court briefly what is meant by the expression "water end" of this engine?

A. A pumping engine is composed of two principal parts, one is the pump and the other is the engine; in other words, the water end is that which does the pumping, and the other is the engine or steam end in which the power is developed by which the pumping is done, and the water end that you refer to signifies the pump. The engine referred to in the first sentence which you read, viz: "The same engine as furnished for Knoxville, Tenn.," manifestly refers to the steam end, or engine end of the pumping engine as a whole. The pumping end determines the capacity, except as it is affected by the speed of plunger; in other words, it is the pump end that does

the work of lifting the water, determines the quantitiy which
3496 the pump will lift at a certain speed. The only other element which affects its capacity is the speed at which it is designed to operate, or will operate successfully.

Q. Now upon the basis of the duty in regard to these two engines the Knoxville engine and the Alliance engine, using the word "engine" as indicating both parts of the machinery, I wish you would state to the court the points of difference between the two engines and which has the better of the comparison?

A. Well first, dealing with the steam end of the two machines, the steam cylinders of the Alliance engine, which they represent as being substantially the same, are in fact a trifle larger than the steam cylinders of the Knoxville engine. It appears however from the letters, that the steam ends have been designed for a lower steam pressure, in order to adapt it to the steam plant at Alliance. The stroke in each case is the same—24 inches. The capacity of the pump as determined by the water end is, in the case of the Alliance engine, determined by plungers that are 17 inches in diameter, operating at 125 feet, piston speed, per minute. The capacity of the pump end of the Knoxville engine is determined by plungers that are 20 inches in diameter, guaranteed to operate at 135 feet per minute. The relative capacities based on those data are as 1 for the Alliance pump to 1.50 for the Knoxville pump. In other words, the Knoxville machine has, as based upon its contract dimensions and rate of piston speed 50 per cent. greater capacity than the Alliance machine. They are rated in the terms of contract capacity as 4,000,000 gallons for the Alliance pumping engine and 6,000,000 gallons for the Knoxville engine. The further distinguishing difference between the two machines is that the Knoxville machine has a guaranteed duty of 95,000,000 foot pounds of work done per thousand pounds of dry steam consumed; the Alliance engine has
a guaranteed duty of 85,000,000 foot pounds per hundred
3497 pounds of coal, based upon a boiler evaporation of 10 pounds of water per pound of coal which is substantially the same as a thousand pounds of steam. The Knoxville machine, therefore, upon the basis of its duty, has a guaranteed efficiency of nearly 12 per cent. in excess of the Alliance engine. The relative contract prices are, for the Alliance Pumping engine $9195.00 net f. o. b. Alliance, with the services of the engineer to superintend the erection, while that of the Knoxville engine is $12,190.00 f. o. b. Knoxville, with no services of an erecting engineer.

The futher taking of this deposition was adjourned until Wednesday morning, January 20th 1904 at 9 o'clock A. M.

3498 WEDNESDAY MORNING, *January 20th*, 1904—
9 o'clock a. m.

The further direct examination of WILLIAM WHEELER resumed by J. W. CALDWELL:

Q. Mr. Wheeler, Mr. Brown, in his replacement valuation of this plant suggests the betterments of the plant by substituting for the

present Worthington pumping engine and Deane pumping engine, two horizontal pumps; I will ask you whether or not, in your opinion such a change by the substitution of a horizontal for a vertical Deane pump is necessary now?

A. It is not necessary, nor in my judgment would it be good policy, or even possible.

Q. Would it be good engineering to do it?

A. It would not, in my opinion.

Q. Please state your reasons for that opinion?

A. Well, in the first place, it would not be possible to install two horizontal engines that would be comparable with or equivalent to the present machinery in the engine pits as they are now built, or even by extending them so that they met, by cutting out the rock and the construction that lies between them—there would not be room for them and to afford room for the men in operating them, or for the suction and discharge connections, to pass. Moreover, I have always been of the opinion and am now, that with this stream, it would be unwise to have both of those engines down in the pits. When the present Deane engine was installed, we informed ourselves, as well as we could, of the history of the floods on this river, and placed the main floor of the new engine house at a few inches above the highest flood level, which we obtained by information to be in the year 1867 or 1868, I think. Now, as a matter of policy, it seems to me, that it would be unwise to place all the pumping machinery on which the supply of this city would be de-
3499 pendent, where it would be incapacitated, in case a flood should come, which might exceed by only a very few inches that level. It is very well known that the cutting off of forests and climaxes in meteorological conditions that come from time to time, result in unprecedented floods occasionally. We would be able to guard against a freshet two or three feet above the main floor, using our vertical engine, that we would not be able to do with a horizontal one. That is to say, if a flood should occur which should fill both the engine pits, we could operate the Deane pump, even though the flood might fill the pits and cover the floor to a depth of perhaps two feet. That is a remote consideration of course, but it seems to me that it is a real one, and it certainly had weight with us in designing our present plant. Were I to replace the Deane engine to-day, I should do it with another vertical engine.

Q. I notice that the four last filters purchased by the Knoxville Company, charged at $4800.00 for the four, including as I understand some extra sets of teeth. Does that indicate the cost of the original filters and filter plant?

A. It does not, nor does it indicate what would have been the cost of replacing it at that time; that is to say it does not afford any indication on the assumption that the cost of the entire filter plant would be made up alone upon the cost of those four tanks, or of 18 tanks like them, for in the filter plant originally installed, there were not only 14 tanks which were practically like the four that were added at a cost of $4800.00, but there were also the clear water tank and Weir, all the raw water supply pipes and branches re-

quired for the 18 filters, all the clear water or filtered water piping and branches, all the shafting, hangers and belting required for the 18 filters, the Westinghouse engine to furnish powers for driving shafting and belting to operate the rakes or the agitating
3500 devices, all the alum tanks and apparatus, all the flooring about the filters and all the general appliances necessary for the complete plant, excepting tanks alone and their immediate fitings; so that the cost of such a plant cannot be determined from the cost of one of its units, or any number of its units alone.

Q. What did the company pay for the sets of teeth or rakes that were sent with those last four filters?

A. Those teeth cost the company nothing. They were furnished by the parties furnishing the filters to replace the teeth originally attached to the agitating devices or the rakes for the improvement of the plant, the company furnishing it having adopted a new form of teeth, or longer teeth, which they considered more effectual and which they offered to furnish without cost at the time the four additional filters were purchased.

Q. Then as I understan- you the item of $23,300.00 for Warren filters &c. shown on page 55 of your deposition is not comparable with the item of $4800.00 for four additional filters shown on page 71 of your deposition?

A. It is not.

Q. Prof. Brown has used the fol-owing language in his deposition on page 137. "For filters, estimates were based upon a filter which has been used by both Mr. Nixon and myself and the operation and efficiency of which has been highly satisfactory. It is a far simpler device than the device in use at the present time by the Knoxville Water Company and is highly efficient in its results." It appears elsewhere in Prof. Brown's deposition that the filter which he would substitute for the Warren filter is known as the Jackson filter, and I ask your opinion in regard to the Jackson filter?

A. The Jackson filter was brought to my attention at the time when the present plant was originally designed and installed, but I was unable at that time, and I have not been able up to the present time to learn of a place where it has been installed on a
3501 large scale for municipal purposes and win the commendation of what I consider experts in the matter of water filtration. It is true that that type of filter could be installed at a less cost than those in use here, but where the object of filtration is the removal of bacteria at the least possible cost of operation, I am firmly of the opinion that the comparison of plants determining what shall be installed, should not be made upon the basis of original cost. I have made some further inquiries recently of acknowledged experts on the subject of filtration, and men who are able biologists, and my information is that the Jackson filters are not only less efficient in their operation, but that they are more expensive to operate by reason of the large quantity of filtered water which is required for the operation of cleaning the filters from day to day. I am also informed that those filters where installed in several cases have failed to give satisfaction to some of the owners

of the plants. I know of no case where they have been installed under the advice of any investigating commission or as the result of any expert advice on the subject of filtration.

Q. It appears in this record that for the fiscal year 1900-1901 $500.00 of Mr. Kimball's salary as superintendent at Knoxville was charged to construction on the books of the company, and that for the year 1901-1902 $375.00 of his salary was charged to construction. Mr. Nixon in reforming the accounts of the company has cut Mr. Kimball's salary for those two years in two, as I now recall, charging one half of the salary to construction and one-half to operating expenses. I wish to ask in the first place if you as president of the company ever approved of charging any of Mr. Kimball's salary to construction account?

A. I did not.

Q. Did you ever disap-rove it?

A. I did. The fact that a portion of the superintendent's salary had been charged to construction account first came to my attention, to the best of my recollection, in the fall of 1901 during the
3502 last quarter of that year, and when that was brough- to my attention, I expressed the opinion to the treasurer that the superintendent's salary should be charged entirely to operation and maintenance, and I understand that the treasurer ceased with that quarter to distribute that salary in part to construction account. I consider it extremely improper and unwise as a measure of financial policy, to charge to construction an item of salary which is necessary to the current operation and maintenance of the plant. The universal practice, so far as known to me with the exception to which you refer in this company, is against it. I am Treasurer of two water companies, and the accounts of several others are kept in my office by my book-keeper as Treasurer, and such practice is not allowed there in any case. As a commissioner of municipal plants, I can say that it is not allowed in any municipal plant to my knowledge; I think that the invariable practice is that the whole of the salaries of all officers and employees is charged, and is properly charged to maintenance and operation.

COMMISSIONER: You don't mean as consulting engineer?

A. I don't mean necessarily engineers who are employed for construction purposes, although I am inclined to think even in such corporations such salaries are charged to maintenance and operation; however my personal knowledge of that is very limited. I do know as a fact however, from information derived from officials of such corporations, that very large expenditures for permanent improvements of the plant are charged to maintenance in the case of railroad corporations.

Q. Mr. Nixon is of the opinion that the salaries should be divided equally between the two, as I now recall—the salary
3503 of Mr. Kimball I mean should be divided equally between the two accounts odf construction and operation. As a matter of fact ought any of it at all be charged to construction?

A. I think not.

Q. Taking it as a fact that as the books were kept in 1900-1901

and 1901-1902 a portion of Mr. Kimball's salary was charged to construction, where in your judgment should the part so charged to construction now be placed as a matter of right?

A. I think it should go into the same account with the rest of his salary, either operation or maintenance. It is an annual current charge and should not be put into capital account.

Q. The same division has been suggested to the Court by Mr. Nixon in the case of your salary and the salary of the Treasurer; that is to say that one-half of each should be charged to construction and the other half to operation. I wish you would indicate the general nature of the services performed by you and General Wheeler as Treasurer, by you as supervising engineer and General Wheeler as Treasurer, and say whether or not in your judgment that division is a proper one.

A. The compensation paid the Treasurer is purely for the administration of current financial business of the company, usually imposed upon a Treasurer, and would be very improperly charged to any other than to maintenance or operation account. The compensation of the supervising engineer, as I have tried to state in my original deposition, is paid for services incident to the current operation and maintenance of the plant. It is based upon income solely, and is not affected, and has no reference to the installation of new plant or of new construction. That service consists in the analysis from year to year of data furnished by the Treasurer, of data furnished by the superintendent, of data furnished by the engineers of the pumping station and filter plant, the sum-
3504 marizing of that data, advice as to current extensions for the growing needs of the community to some extent and the making up of annual summations from the data to which I have referred; also advice as to any economies, of methods or systems as developed in his experience tending to the greater economy of running the plant. The services of William Wheeler as engineer upon construction, were not compensated out of the 1% of receipts for water which he has received as supervising engineer. I think up to the time when I testified before, the only compensation that had been paid William Wheeler since the contract of November 17th, 1893, was made, was expenses and certain *per diem* allowance while he was employed in behalf of the company outside of New England. In any trips, in other words, that he may have made to come to Knoxville, or to Washington, or to New York in the interest of this company. Such engineering service on construction proper of this plant as had been rendered up to the time of my original deposition had not been paid for in any form otherwise than I have stated, and had not been charged for. With reference to this company, the same practices were followed as with reference to all other companies with which I am connected, excepting one in the state of Washington. The magnitude of that service, however, had become so great in the case of Knoxville, which is the largest plant that I was connected with, that in the Summer of 1902 I had submitted to the Treasurer and Directors a request for consideration of pay-

ment for those services, as I could not afford longer to donate the services, although I was largely interested as a stock-holder——

Mr. PICKLE: We object to the statement on the ground that the facts that he is now relating is the action of the company taken long since the date of enquiry in this case and since his former deposition was given, or a part of it at least and is, all of it *ex post facto,* and is therefore not competent in this case.

3505 COMMISSIONER: The objection is over-ruled as the testimony is only intended in an argumentative sense and can only have such effect.

A. I will only add further that that request for compensation on account of construction was granted, and that I have since been compensated for such service entirely independent of my percentage allowance on maintenance account.

Mr. PICKLE: I except to the entire statement on the additional ground that the company and its officers cannot make up records after the institution of this suit and make the same evidence with reference to this case.

Exception over-ruled.

Q. During the construction that went on during the fiscal year 1900-1901 during which time Mr. Kimball was superintendent, was the engineering work here at Knoxville done by him alone?

A. It was not.

Q. Who assisted him?

A. Mr. Charles I Bowker was employed as assistant engineer here.

Q. Did his service continue during the entire fiscal year 1900-1901?

A. It continued I think from December 1st, 1899, to April 10th, 1901, something over 15 months. It covered the whole of the year 1900.

Q. Question has been m-de in this record in regard to the ownership of the services connecting the street mains with private property. I wish you would state the facts in regard to those services as affecting the question of owner-ship of them?

A. When I became interested in this plant in 1890 or 1891 it was a practice of the company at that time to charge to takers and arbitrary sum of $8.00 as I now recall, for the tapping of the

3506 main and street connection—what we ordinarily call the service pipe. I think that practice was not disturbed or changed until about 1895 when the company adopted a more detailed schedule of rates, rules and regulations, designed chiefly to equalize the rates and to establish a code of rules and regulations which should define its policy as between itself and its customers. At that time the policy of charging for the street connection was discontinued and has since been discontinued, or at times it has been diminished only and a charge of $5.00 has been made. The company has always considered, and no issue has ever arisen to the contrary so far as I have been informed, that the service pipes are

a part of the company's property. The contract between the water company and the city provides in terms in connection with the rates which the company may charge, that the cost of connection should be borne by the consumer, but there is no implication that that policy is any more than a part of the consideration which he shall pay for water service. As a matter of fact very many, perhaps a large majority or nearly all of those original services laid in that manner have since been renewed by the company and at its sole expense. The company is the only party having any rights to the property within the city limits, and the care and protection of that property rests upon it, and the company is liable for any defects or injuries attaching to it as against the persons using the streets. It is quite customary with regard to water works properties, municipal or private, to make some charge upon the score of connections and tapping, and the differences in such cases, including this case, are simply the differences in degree, or in the relative amount of such charges as collected from time to time, or in different plants. I might add, as a matter of fact, that the control of that service pipe on the street side of the curb cock and of the curb cock itself, rests solely in the water company as against the consumer at least.

3507 Q. Prof. Brown, in his deposition on page 151 is asked this question: "In other words you undertake to replace substantially the plant constructed prior to March 31, 1901 under the conditions stated in Mr. Wheeler's estimates. A. Yes sir." Suppose that such replacement is contemplated. Should any allowance be made for restoring brick paving and what prices of material entering into the water plant should be used?

A. Do you mean upon the assumption that it is to be replaced as stated in Mr. Brown's answer?

Q. Yes.

A. Well as I recall the answer as you read it, it says "under the conditions set out in my estimate." One of those conditions was the time. It seems to me there is some inconsistency as to that as I understand his replacement was of March 31, 1901. If however you have in mind replacement as of March 31, 1901, but otherwise that the plant to be constructed shall be such as is provided for in my estimate, why then I should say that such replacement should be estimated upon the assumption that all the conditions which existed here March 31, 1901 should be met in making that replacement—all physical conditions as well as all financial conditions. Financial conditions involving differences in prices of material and labor; physical conditions involving condition of the streets as they existed here March 31 1901, and would includ*ing* therefore any additional paving or macadam which had been constructed along the lines of the street pipes up to that time. In other words, in a mere replacement estimate, the estimate would have the advantage of any reduction in prices as compared with the time when the plant had been actually created, and would have to bear the burden of any increased charges or costs of that time. It would likewise have the advantage of any changes in physical conditions, and would have

to bear the burden of any disadvantages, arising from such
3508 changes. I don't see how one can honestly face a problem of that sort and evade the logical conditions which it involves.

Q. Suppose that there is, or has been depreciation in the physical plant before the time to which the replacement valuation is applied, what is the effect of the replacement valuation with regard to that; I mean culminated depreciation?

A. It leaves it entirely unprovided for, and if rates were then to be fixed solely upon the basis of the value as determined by replacement, it would effect a complete destruction or confiscation in effect, of the capital that had been originally invested in those parts of the plant that had served their purpose and been discontinued prior to the time when the estimate of replacement was made.

Q. Can you conceive of circumstances under which a replacement valuation assigned to a particular date could represent the actual or investment value of a plant of this kind?

A. Yes I think I can conceive of such a case—that is actual value so far as the physical property is concerned. That condition would accrue I think in the case of a plant which had been built in a community which did not grow to any extent requiring any changes in the plant or any modification in the nature of replacements, and estimated at a time when cost or unit prices of the work involved therein, was not less, for the time being, than the cost of the same work or unit prices as of the time when the work was actually done. I don't know that I meet the intent of your question, but that is a conceivable case.

Q. Now apply those consideration- to this case?

A. As a matter of fact, in this case in general, the cost of work and of materials March 31, 1901 was less than such costs were when the work was actually done from year to year and from day to day
almost, since 1883. They were, in the light of what we know
3509 since, also less than similar costs have been since, and it is for that further reason, it seems to me, why the weight to be given to a replacement cost is to be minimized or reduced if indeed it has any weight in a case of this particular kind. Of course the rates which are now under determination and consideration are to prevail indefinitely; that is without limit of time in the future, but the conditions of replacement are of a day only and will vary constantly during the time for which those rates are to be fixed.

COMMISSIONER: What do you think of the effect of doing the work all at once, in one job instead of doing it as it was done?

A. Such work can undoubtedly be done at less cost, other conditions being the same, if done all at one time than if done to such extent as has actually been the case. This is true, not only of unit prices of construction like pipe per foot, or pipe per ton, or brick per thousand, or rock per cubic yard, and it is also true I think that the contingent account would be reduced if the work were all to be done at one time. The engineering would be less possibly and all the general contingent costs included under the percentage allowances that have been made in the several estimates, would probably be diminished if it were all done at one time; in other words such costs would

be less than the costs actually incurred as the work was done from time to time.

Q. I wish to ask your attention to quotation from the deposition of Mr. William Nixon, beginning with the 2nd paragraph of the 3rd question asked him on page "726" of his deposition in the following words: "The other voucher No. 2290 so far as it relates to expenses is for renewing tracings $258.65, blue prints $4.72, sundry postage, internal revenue expenses, &c. $6.08, making a total of $269.45. Now why disallow any of these items"? to which in the 2nd paragraph of his answer to that same question, Mr. Nixon says "Voucher No. 2290 is for $626.54 of which $269.45 has been charged to expenses incurred at Boston in stamps and services of Mr. Wheeler's employés, that appear to have been entirely unnecessary in
3510 the operation of the Knoxville water works, as these tracings, copies, &c. could be done here by the employees of the company on salaries paid by operating expenses without this extravagance." What have you to say as to the necessity of this work and the matter of extravagance there attributed to the company?

A. In the first place that work was necessary because of the wear and tear of tracings being in constant use here, and the force employed here at Knoxville is designed to be only such as is necessary for the current operation and management of the plant and does not from time to time include men who are best fitted to do this work of tracing, although we have had men here who could do it if their other duties permitted. As a matter of fact I have at my office men whose services are given almost exclusively to such work and who are able to do it more expeditiously and in a better manner and at less cost than it could be done here. That work is done for this company as it is for other companies at a special reduced price, less than is charged to the ordinary client. I think it would therefore be very unfair to characterize such as extravagance. It is in fact a necessary work which I am satisfied with done at less cost and in a better manner than it could have been done here.

Cross-examination by G. W. PICKLE:

Q. Mr. Wheeler, you are the same William Wheeler who testified on a former occasion in this case, submitting a statement of the fair construction cost of this plant, and the President of this Company for the past several years, and a member and successor of the firm of Wheeler & Parks who has charge of the books of that firm, are you not?

A. I am the same person to which you refer.

Q. You still adhere to the idea advanced in your former deposition that invested value is the basis upon which fair return to
3511 stock-holders is to be computed, do you?

A. It is a very important element of the basis on which such return is to be computed and such computation is to be made.

Q. Mr. Wheeler, in an exhibit to your former deposition, showing among other things the portions and per cent of the Knoxville Water Company's plant outside the city limits of Knoxville, you have stated and shown under parallel columns the portions and per

cent. of the plant outside of the city required for and in connection with the plant within the city limits, and the portion and per cent. of the plant not required for use with the city plant. You make the total per cent. of the plant outside the city 17.61% which represents the amount of $124,283.30 of your fair construction cost. The same statement shows the per cent of the plant outside the city not required for use with the city plant to be 12.29% represented by the amount of $87,426.31 in your original statement of fair construction cost. Now I want to ask you if there is not embraced in both of these amounts and both of these per cents the following items or values representing portions of the plant that were not used on the date at which you make this estimate, to wit; March 31, 1901 for the distribution of water at all, either inside or outside the city, to wit;

Real Estate of the L. B. plant.....	$3000.00
Improvement on real estate of L. B. plant.....	35700.00
" building and M'ch'y "	15420.00
Making aggregate in these three items alone of..	53120.00

I will ask you to look over this Table and see if there are not other items that had entirely gone out of the plant besides the ones that I have named that enter into this statement?

Mr. CALDWELL: We object to the question as re-opening the case and involving matters which the defendant had full opportunity to enquire at first and about which it has already enquired and made proof by its own witnesses.

3512 Objection over-ruled by Commissioner.

A. It is true that of the plant outside the corporate limits of the city March 31, 1901 as contained in my summary to which you refer, there are in the column of "plant not required for use with City plant" three items of Real Estate $3000.00, improvements on Real Estate $35,700.00, improvements, buildings, and machinery $15,420.00, the total of which is $54,120.00 instead of $53,120.00 and these items enter into the total column necessarily. The details of the analysis from which this summary is made up, shows that these three amounts relate to parts of the plant, the use of which had been discontinued, and which were ther-fore treated as accrued depreciation. I do not find any other items of that character although I have not made a complete examination of the details of the analysis—none such occur to me however in looking over the summary to which you call my attention.

Q. Now Mr. Wheeler, the above items aggregate over $54,000.00 and must be considered and computed as entering into the *p*a*l*nt outside of the city on the 31st March, 1901 in order to arrive at the result that there is of this plant 17.61% of the whole plant outside the city?

A. It enters into the computation, yes sir.

Q. And in order to arrive at the further result that there is 12.29% of the plant outside of the city that is not required for use with the

city plant, this same aggregate of $54,000.00 must be computed in arriving at that per cent., must it not?

A. Certainly it enters into that computation.

Q. Now will you elimate that aggregate of $54,000.00 representing what you admit to have gone out of use entirely for the supply of water on March 31, 1901 and state then upon the basis of the elimination of this amount what per cent. of the entire plant, meaning thereby the useful plant, would be on the outside of the city and also what per cent. of that part which is on the outside of the city
3513 is required for use in connection with the city plant?

Mr. CALDWELL: We object to the question on account of the difficult calculation it requires the witness to make.

A. Taking out of the statement or of the summary, which is a summary of invested values, the three items to which you refer amounting to $54,120.00 would reduce the amount of the column headed "plant not required for use with city plant" from $87,426.31 to $33,306.31. It would reduce the column of totals from $124,282.30 to $70,162.30. It would reduce the "cost of physical plant to March 31, 1901" at the bottom of the tabulation from $711,379.51 to $657,259.51. It would convert therefore the nature of the summaries actually contained in the table and in the exhibit from a summary of invested values to a summary of the values of that portion of the investment or of the plant that was then in use, and would effect to that extent the elimination of a part of the element of accrued depreciation. The resulting per-centages adapted to the modified conditions which the question calls for would be as follows:

Substitute for 12.29% 5.7%.

Substitute for 17.61%. 10.83%.

Q. Now Mr. Wheeler, I find this provision in regard to the subject of services in the original contract between your company and the city of Knoxville. I quote: "Said company will supply private consumers with water at a rate not exceeding 5 cents per 100 gallons, provided however, which is expressly understood that the entire cost of introducing from the mains into private premises including cost of meter, but this shall be borne by the parties introducing or ordering the same, and that no main or distributing pipe shall be tapped except by a plumber licensed for said purpose by said company." Now as I understand up to a date which I believe you stated
3514 was 1895, the practice of the company had been, so far as you know, to charge the entire cost of these services to the water consumer according to this stipulation in the contract?

A. My knowledge is simply from the time we came here; they were charging consumers $8.00 for the tap and connection. In my analysis of invested values I have assumed that that sum was charged for that purpose from the beginning of operation.

Q. Up to what time?

A. Well I have the impression that it was up to sometime in 1895; I am not sure as to that; but that is my recollection.

Q. Well from 1895 to 1901 what was the charge?

A. The sums are set out in my analysis according to my knowledge of it. I can go back to that and read it, if you think it necessary; but at times it was $5.00 and at times it was nothing.

Q. Now isn't it a fact Mr. Wheeler that in your original statement of the construction cost, or fair construction cost of this plant that you charged even at the rates you fixed of $8.00 for putting in services, only about $5400.00 for putting in the services during your entire statement of fair construction cost up to March 31st 1901; I mean including the 20% which you add for certain purposes?

A. I have not before me the transcript of my deposition but referring to my original notes I find that I have charged therein as the fair invested cost, or value of service pipes and appurtenances nothing whatever up to the year ending March 31st 1895 and a total of $8574.00 for the remaining six years up to March 31st 1901. This total includes the 20%. Deducting the 20% to meet your question, the corresponding total would be that sum divided by 1.20 or $1745.00, if I have computed it correctly.

Q. Well Mr. Wheeler as our calculation taken from your former estimate differs from the figures you have taken from your memoranda I will ask you to look to your original deposition and see if you are not mistaken in the amount?

3515 A. I have examined my deposition and find that the original amount charged therein on the basis of fair cost was $7145.00 as I have already testified, and with the 20 per cent. $8574.00 and that those amounts are distributed over the years from March 31st 1896 to March 1901 as stated.

Q. And this amount is made up of the difference between the $8.00 at which you estimate the cost of services and $5.00 the amount charged and collected from consumers, is it not?

A. It is made up of the estimated fair cost of $8.00 per service less whatever was charged to consumers, and no estimate on the basis of investment has been made in case of service pipes where a charge of $8.00 was made on account of connections.

Q. Up to March 31st 1901, no services at all had been put in at the exclusive cost of the Company, had there Mr. Wheeler?

A. Yes sir.

Q. For what year as shown by your estimate, and what number?

A. Shall I go over the record again; the record shows it all? Wherever in my estimate of fair invested value or of orig-nal cost an allowance of $8.00 per service is made, the total cost of laying service was borne by the company.

Q. Now for what period prior to March 1901 is that $8.00 charge made and carried out. Give me the dates and the number of services?

The further taking of this deposition was adjourned until 3 o'clock p. m.

3516 WEDNESDAY, *January 20th*, 1904—3 o'clock p. m.

Continuation of cross-examination of WILLIAM WHEELER by Mr. PICKLE:

A. In answer to the last question propounded; the estimate for services in my deposition shows all services up to March 31st 1895 as having been estimated at $8.00 as a basis of the accounting of the element of depreciation, but the amount or cost thereof was not carried into the estimate construction cost or invested value. For each of the years from 1896 to March 31, 1901 the services are estimated as at $8.00, and for each of those years up to March 31, 1900 a credit of $5.00 is made for each service and the balance only carried into the estimate of construction cost. I should except from that however, those services that had been already laid in connection with the Lonsdale Beaumont property, and for which full credit was given of $8.00 per service, and none of that carried into the invested value. For services laid during the year ending March 31, 1901, they were accounted at $8.00, and the whole of that amount carried into the estimated value, no charges against the takers having been made during that year for service pipes. This statement which I now make, does not include those services laid in 1892 or 1893 in advance of paving which remained not in use in 1901 and which were paid for by the Water Company, but for which no estimate has gone into my analysis of the construction cost in any form.

Q. Well then Mr. Wheeler, as regards this question of services, the consumers that you had up to March 31, 1901 were divided into three classes; first, those who paid the entire cost of their services; second, those who paid part of the cost, and third, those who paid none of the cost of the services. Now I will ask you if in the charges your company made for water, whether by a fixture rate or by the gallon or measure, there was any distinction made between these three classes of consumers?

3517 A. No distinction was made from time to time. I would not say that the customers were divided into three classes, but I would say at different times the policy of the company, that the basis on which it put in service pipes, was modified, and that modification was a progressive one from a charge of $8.00 to a charge of nothing for the service connection. It was, in effect, the adoption of the policy of the company to extend and increase its business by diminishing the charge for service connections and undoubtedly had the effect of building up the business and enhanced thereby the value of the "going concern" as of March 31 1901. It is one of the elements of the cost, if it can be construed that way. There is no discrimination as between classes of consumers, but simply the adoption of a different basis or rate charged for services from time to time.

Q. Well, divesting your answer of all other matters, will you state distinctly and directly whether any distinction as to your rates or charges for water was made between the customer who paid the whole, or the customer who paid none?

A. No distinctions were made, except such as I have stated, that occur to me now.

Q. Well now, after services have once been put in, they are taken care of, or supposed to be taken care of like other depreciation in the plant, by the annual allowance for depreciation or renewal are they not?

A. When the service becomes so far impaired by age or any other cause as to require renewal, we renew it. That takes care only of such services as have become entirely unfit for use. Of course it does not cover that depreciation which is incomplete on those remaining in use.

Q. Well repair of services is taken care of in operating expenses, is it not?

A. It is taken care of by repair account.

Q. That is repairs account?

3518 A. I distinguish between operation and repairs. If the term "operation" is in your mind intended to be broad enough to include "repair," it does include it, otherwise it does not.

Q. And the allowance for depreciation takes care of such depreciation of the plant as that allowance is made for?

A. What allowance do you allude to?

Q. The annual allowance for depreciation.

A. What allowance are you alluding to—in my estimate?

Q. No, you have stated something like 2% would be allowed for supplying depreciation in the plant that takes care of services as well as other portions of the plant that become depreciated.

A. Whatever allowances are set out in my analysis and are therein reduced to an average basis, such average is intended to cover service pipes along with other things. That covers however with respect to service pipes only such of the service pipes as were comprised within the estimate of fair investment cost that was incorporated into that average, and that in itself would not cover the item of depreciation, as I now understand you, on those service pipes, the cost of which was not incorporated into my summation of the fair invested values.

Q. This last remark of yours applies to your statement of the fair cost of the construction of the plant and not to the general question of allowance for depreciation?

A. It refers to both the question of cost and depreciation.

Q. Well the pipe that you have examined here has shown decided evidences of depreciation or deterioration rather?

A. Well I don't know what you mean by "decided." I measured it in figures. I do not understand what you mean by "decided." My figures have dealt with the absolute replacement of certain amounts of pipe, both cast and wrought iron. Deterioration in the case of those was very decided in that it was complete. From my experience with such pipes and my general experience elsewhere I have expressed in figures the depreciation of the rest of it. It

3519 is decided to the extent to which those figures carry it. I cannot define the degree any more definitely than I have done by the figures.

Q. What kind of soil do you find at Knoxville in which this pipe is laid?

A. It is generally what I would call clay soil—reddish clay soil, I should say of lime-stone origin or something of that kind.

Q. Is it a soil that is favorable or unfavorable to the life of the pipe?

A. The effect of the soil as compared with the effect of soils of this country generally, it would not be considered unfavorable.

Q. Mr. Wheeler did you testify in the case or proceeding before Frederick A. Powers, Henry B. Cleaves and Waldo Pettingill relating to the appraisement of the Dover and Foxcroft Water Works in Maine?

A. I did.

Q. On whose behalf did you testify in that case?

A. On behalf of the owners of the property; the Maine Water Company.

Q. What was the object of that proceeding?

A. To fix the price which the Dover & Foxcroft Water District should pay to the Maine Water Company for their property.

Q. Now didn't you fix in that case depreciation at one-half of one per cent., and state that that was large and full?

A. I dont' think I did in those terms.

Q. I will ask you if this is not exactly what you stated: "Q. I omitted to ask you from your estimate of your physical values which you have given, if you made any allowance for depreciation? A. I have. Q. You may state in the first place just what it is and upon what it is based? A. Well it is based upon the expectation that sometimes, either from growth, I wont' say 'either' but from causes comprising growth of certain dis-
3520 tricts, of growth of the whole community, certain parts of the plant particularly the pumping machinery would have to be replaced to furnish an increased supplying capacity. The service pipes would perhaps be the next, or perhaps be the first part of the plant needing replacement, but ultimately, even the cast iron pipes, although they show no present material deterioration. I estimated a depreciation of one-half of one per cent., not upon the cost of the physical plant, but upon those parts of the physical plant that are subject to more or less depreciation, and excepting the real estate and supplies which has gone into the works. Q. One-half of one per cent.? A. One-half per cent. for the fifteen years. Q. Representing half of one per cent. for the fifteen years? A. Yes sir, one-half of one per cent., contributed annually to the sinking fund would replace the entire plant if invested at four per cent. in about sixty years,—rebuild the whole plant. Q. So that you have arbitrarily allowed an average depreciation of one-half per cent. on the whole valuation except the real estate? A. Yes, except the real estate. Q. That you take from your physical values? A. Yes sir."

Q. Again, did you not state in the same connection on the same subject: "Now as to the actual amount of depreciation or injury to the pipe line, is there any possible system or rule of depreciation percentages that can be determined by the actual depreciation of the pipe itself as showing the extent of depreciation? A. I think I understand you. I was about to say that, of course the longer the pipe

has been laid, the more unreliable would be a judgment formed upon a physical examination of the pipe. A pipe that has been laid in the ground a very few years, two or three or four or five years perhaps, you would not expect to be much aided in forming a judgment so early as that, but this pipe in this case, which has been laid four-
teen or fifteen years, has undergone quite a large fraction of
3521 a century. For instance from examination of this pipe, I
should expect this pipe to be serviceable and useful seventy-five years hence. Q. If those two pipes are in that condition, you have seen, is there any possible reason to expect, to anticipate that the rest would be in any different condition? A. I know of no condition to anticipate that. I think it is well understood that a pipe laid in a clay soil—soil formed by the disintegration of lime-stone and slaty rock, is less injurious to pipes than other soils, and that appears to be the character of the soil here. Q. In your opinion then, so far as applicable to the pipe line, or the material of the pipe line, is one-half of one per cent. a year, which you have allowed for depreciation, large or small? A. I think it is large?"

Q. Now I will ask you if you didn't give that testimony, or substantially that testimony in the case to which I have referred?

A. I don't know what you are reading from General, and my memory don't serve me absolutely to state positively, but testing what you have read with my opinion in that case, and my recollection of it, it coincides with what I expect I have testified. The conditions in that case are such that I would repeat that testimony in effect now. I don't know that it is proper for me to make comparisons between that plant and this one——

COMMISSIONER: You might as well.

Mr. PICKLE: Do I understand you to say that you gave that testimony?

A. I can't answer "yes" or "no" from memory, but it is substantially such testimony as I should have given and would have given.

Mr. PICKLE: Well, that is all I ask for at present.

A. This plant at Dover and Foxcroft is a plant, in which so far as appeared in that case, had never called for the renewal or replacement of a foot of pipe, by reason of the growth of that community, and there never had been an additional pumping engine
installed, nor was there to be considered the replacement of
3522 a dollar's worth of property so far as I now recall. It was a
slow growing community; in fact the revenues had practically come to a fixed basis, showing very little increase from year to year, and there was no adequate ground for an opinion that that class of replacement, which here is the largest would there show any change; that is to say, that that class that is due to growth in population and in business, would become necessary at that place. There were no boilers, excepting a small boiler for an auxiliary engine, the power being furnished by water; there was no steam engine or steam connections, excepting the one for the auxiliary appurtenances, which was very small. There was no stand-pipe; there was an earth reservoir in part of masonry which was practically imperishable; no oc-

casion to expect that it would have to be replaced by one on a higher level, or in another location, and in my judgment one-half of one per cent., as stated in that testimony, that would replace it in 60 years, was as liberal an estimate for depreciation there as 2 per cent. would be here; probably more so.

Q. What have you placed the life of cast iron pipe at in this case, or what do you place it at?

A. From what cause General?

Q. I mean generally in this plant; where it is laid in clay soil like that up in Maine?

A. I should have to run through my record and see. I have considered it in the light of various aspects.

Q. Well I will ask you, going back to your deposition in the other case (Maine case) I will ask you if you didn't make this statement: "Q. The service pipes you say, are more active in depreciation? A. Yes. Q. As to those you consider the average the same, one-half per cent. as applied to this line, would that, in your judgment be large or small? A. That would be large enough for the service line." Did you make that statement?

3523 A. As I understand it now, I don't think I did in those words. I don't understand its connection. I don't think one-half of one per cent. per annum is an adequate allowance for depreciation of service pipe in any case, except it may be where service pipes are laid with lead pipe, or something no less durable. I don't think I testified or intended to testify in any case in which I have ever given testimony, that the allowance for service pipe, taken by itself, should be so low as one-half of one per cent.

Q. Do you deny making the statement I read to you?

A. I make no comment about it. I have no recollection of it, but I deny the belief that I made such a statement at Dover, and if you think I did, I should prefer to get a certified copy or statement, or else my notes of the testimony in that case. Perhaps I could read what you have before you and clear up my doubts about it. If you don't care to submit the matter to that test, I don't care to comment on it further.

Q. I will ask you to state whether you made this statement in your evidence in the Maine case already referred to: "Q. So far as the labor of the laying of the pipe line is concerned, there is no depreciation on that? A. I should think not. If new pipe were to be laid in the old trench, or if you were to replace the pipe in the old trench, you would have to do the digging away again, but the rock work is done once for all, unless you change the location of the line. "Q. So you would estimate some depreciation even on the laying of the pipe? A. Yes." Now I will ask you if you made that statement?

A. I cannot tell you, General, whether I did or not; those are substantially fair statements as I understand.

Q. Whether you made them or not, they are correct ar-n't they?

A. Which one do you refer to, the one last read?

Q. I will read it to you again: "Q. So far as the labor of the laying of the pipe is concerned, there is no depreciation on that?

3524 A. I should think not. If new pipe were to be laid in the old trench, or if you were to replace the pipe in the old trench, you would have to do the digging away again, but the rock work is done once for all, unless you change the location of your line. Q. So you would estimate some depreciation even on the laying of the pipe? A. Yes." *A.* Did you say that?

A. I would estimate in my analysis in that case one-half of one per cent. according to the best of my present judgment on the whole of that property, subject to depreciation, and I think it included in that case all of the property excepting the real estate and the stock on hand. I think my estimate in that case for depreciation on cast iron pipe as a whole, was something less that one-half of one per cent. per annum applied on the sinking fund basis, but whatever it was, it applied to the whole of the costs involved in furnishing and laying the pipe, except possibly upon the item of rock excavation, which was quite a large item in that case, but it would be impossible for me now to affirm or deny the accuracy of what you read to me. I will say that in another Maine case, which I have here and in which I think my allowance for service pipe was the same——

Mr. PICKLE: I am not asking you about that.

A. —I allowed 2 per cent. per annum.

Mr. PICKLE: I object to answers I don't call for.
COMMISSIONER: Over-ruled.

Q. What was the other Maine case to which you refer; give the style of it and place?

A. It was for the valuation of the water works at Waterville, Maine.

Q. Whom did you represent in that case?

A. The Maine Water Company.

Q. The seller or buyer?

A. The seller.

3525 Q. The same company you represented in this case or a different company?

A. The same parent company as in the Dover and Foxcroft case.

Q. Mr. Wheeler, how were your meters put in prior to March 31, 1901, as regards payment of any part of the expense by consumers?

A. I cannot tell you.

Q. Do you not know that the consumers were required to pay the expense of meters as well as service pipes?

A. No, I don't know about that.

Q. Can you obtain that information?

A. Well, I think you can get that information perhaps from Mr. Kimball; I don't know about it.

Q. All I want is the fact in the record?

A. There were certain meters, I am informed, where the taker exercised his right under the contract to have water by meter instead of by fixture rates, at the price stipulated in the contract of 5 cents per 100 gallons in accordance with the terms of the contract, the cost of the meter was put upon the taker. I am also of the opinion

that in all cases where the company exercised its right or its option to have the water supplied at the lower schedule of meter rates which it established for that purpose, it assumed the cost of meter—made no charge for it.

Mr. PICKLE: I desire to give notice now to the President and Superintendent of the water company that we desire them to file a statement showing the amounts paid by consumers upon the meters that had been put in prior to March 31, 1901.

Mr. CALDWELL: If the Court please, that opens up the same question again.

COMMISSIONER: I don't think I shall compel any body to make up any statements at this time.

3526 Q. Mr. Wheeler, Mr. Kimball, your Superintendent is now present, isn't he?

A. He is.

Mr. PICKLE: I give notice to Mr. Kimball that on his examination, of which we have already been notified, that we will request him to show how the meters were put in prior to March 31, 1901, whether at the expense of the company or at the expense of the consumer, and to what extent at the expense of each.

Q. Now, Mr. Wheeler, in your statement of fair construction cost of this plant from year to year, you have figured, I believe 266 hydrants. Now isn't it a fact that there were only 247 hydrants in use on this plant on the 31st March, 1901?

A. By "in use" do you mean under rental by the city of Knoxville?

Q. Yes, yielding any income?

A. Well without undertaking to answer in definite figures I will admit that there were certain hydrants upon which the city was not paying a rental. Those in the old 10th Ward, some 13 or 14 in number were not subject to rental at that time.

Q. Weren't there 16 of them?

A. Possibly; I do not carry the exact figures in my mind.

Q. And isn't it a fact you are receiving for about 3 hydrants in West Knoxville that you have never put in?

A. I don't think that question can be answered correctly, yes or no. We are receiving pay for the right of the city to have a certain number of hydrants. It has not exercised its right to have all of those hydrants set, lacking perhaps 1, 2, or 3, but the city is paying only according to its obligations under the contract, and we have fulfilled ours under that contract so far as the city has called upon us to do so, and we have charged for no hydrants in West Knoxville in our estimates of construction or invested values which are not set.

3527 Q. Well there are three of those that haven't been set?

A. There are three of which the town of West Knoxville had the option to have set, and I suppose the city of Knoxville succeeds to that right to have them set.

Q. Well now there are 16 more or less hydrants in the 10th Ward

that have been standing there since 1893, have they not, and the city repudiating them and refusing to pay rental on them?

A. I think you state it substantially correct, since the 10th Ward was cut off from the city.

Q. And it was settled in a suit between the water company and the city by the Supreme Court of the State that the city wasn't liable for the rental?

A. I think so.

Q. Mr. Wheeler, this Worthington pump that you have here, is it brass lined, or how is it lined?

A. The pump end you mean?

Q. Both ends, or either end?

A. Well at this moment I am unable to say whether it is or not. It is a well finished engine—a high class engine. I think it is the most efficient of its type the Wo-thington Company had ever put out up to that time—that is, an engine of that size.

Q. In point of fact doesn't that engine consume 16 hours per day in pumping three million gallons of water?

A. Well now what do you mean by that, General?

Q. Well isn't that the rate at which you run it?

A. The pumping records will show the fact. I don't carry it in my mind. It is quite possible that that is the fact at times.

Q. Supose you run it at the ordinary rate of speed; suppose it does in fact pump three millions of gallons in 16 hours, how many gallons would it pump in 24 hours?

A. Well that is a simple problem. I think I will ask you to answer that. I wouldn't deprive you of the opportunity to figure that.

3528 Q. Well I will let you figure it. I ask you if four and one half millions wouldn't be the capacity at that rate?

A. That would be its service; its capacity is unchanged.

Q. Well Mr. Wheeler, what is the head or height or elevation against which pumping is ordinarily done at this plant?

A. Well the static lift, excluding the element of friction in the suction pipes and force mains is, approximately, at low water, between 237 and 240 feet. That is increased by the friction in the force main, which varies according to the rate of speed at which the pump is run, increasing with the higher speed.

Q. Now the 237 feet measures from the low water mark in the river to the high water mark in the stand-pipe, doesn't it?

A. It measures from low water mark in the river to the settling basin in the filter plant.

Q. Are you sure about that?

A. Well yes; we pump into the settling basin and that would determine it.

Q. Now don't you know that the pump at Alliance, Ohio pumps at over 275 feet of elevation or head?

A. I don't know anything about that except as I might infer from its proportions.

Q. Well what would you infer?

A. Well I haven't inferred; I haven't analyzed it.

Q. Mr. Wheeler, what is the cost of a set of filter teeth for filters such as you have here?

A. I don't know.

Q. Have you any idea at all?

A. Why I have never bought any separate from the main filter plant and I have had no occasion to investigate. I have heard that some have been cast here at a very low cost, practically on the basis of so much cast iron per pound, but I have no information from which I could testify.

Q. Do you know what the Warren Filter Company charges
3529 for a set of filter teeth?

A. No sir, I do not.

Q. Now you have spoken of that purchase of four Warren filters with 13 or 14 set of new teeth $4800.00; who made that purchase?

A. I negotiated it.

Q. Who closed the contract?

A. I did.

Q. The Jackson filter company doesn't belong to the filter trust does it?

A. I don't know sir; I don't suppose it does but I am not able to say for a fact. I believe it doesn't.

Q. Who bought the other filters that went in up there?

A. I did.

Q. When?

A. In 1894 to the best of my recollection; possible in the winter of 1893 and 1894.

Q. You bought them as the representative of Wheeler and Parks?

A. Yes, I bought them in the name of Wheeler and Parks or of William Wheeler, I am not quite sure which. The firm was dissolved about that time.

Q. Mr. Wheeler, you say that you objected to the charging to construction of the $500.00 of Mr. Kimball's salary that was charged to construction for the year 1900-1901, and $375.00 of his salary which was charged to construction for the year 1901-1902, and that you think that these small sums that were charged to construction should have been charged to operating expense account, I believe?

A. I said that, or intended to say, that I expressed my dissent from the policy of charging anything of the Superintendent's salary to construction account.

Q. Mr. Kimball was here during that period of operation and construction covering those two years, and was the manager and chief engineer of the company?

A. He was Superintendent for the period to which you refer.

Q. And was paid a salary for that period?

A. I suppose he was.

3530 Q. And from December, 1899 to April 1901 you had on the ground a Mr. Bowker as assistant engineer who was likewise paid a salary, wasn't he?

A. He was paid a price agreed upon between us when I employed him for that purpose.

Q. Well that was paid as an operating expense?

A. No sir, it was charged to construction.

Q. How much of it?

A. Well I am not quite certain that he did not render some service during that time otherwise than on construction account; if so it is very likely for such of his service that was given to other than construction purposes, it was charged to operation or maintenance, but for the most part his service was devoted strictly to construction.

Q. Was he a stock-holder or director or a son of a director?

A. No sir he was no relation of Mr. Bowker who has been a director.

Q. Now in making up your construction account for the year 1900-1901 I will ask you if you have not charged or rather estimated in your fair construction value of that year the sum of $3800.00 or a little in excess of that for engineering on construction of that particular period?

A. Do you refer to the year ending March 31, 1901?

Q. Yes.

A. Your figuring seems to be correct.

Q. The construction of that year was done directly by the water company, wasn't it, through its officers and employees?

A. Yes sir, that is my recollection.

Q. What amount have you figured into the construction of this year for contractors' profits?

Mr. CALDWELL: We object to the question on the ground that it is a repetition of what is already in the record sustained.

3531 Q. Well you did figure 12.21% of your 20% allowed for engineering, interest and contractor's profits on to the construction for that year for contractor's profits, risks &c. didn't you?

A. That sum is a part of the 20 per cent. which, as I have repeatedly stated throughout my deposition and appears in my analysis is included for items stated in terms on page "25" of my deposition, "for engineering 6 per cent., contractor's services, expenses, risks and profits 12 per cent., and interest on capital during construction, 3 per cnet. these three amounting to 21 per cent"—I have used for a percentage covering all, 20 per cent.

Q. Can you give the amount in figures of the 20 per cent. that was added on to the construction for the year I have just asked?

A. Yes, $13,441.76.

Q. And for contractor's profits it was 12.21 per cent. of that amount?

A. Under that head, if you separate it, it would be 12.21 per cent. of that amount.

Q. Now you have stated, and it appears in the record that $500.00 was paid Mr. Kimball and charged to construction account for engineering services presumably during this year?

A. I have not stated that. I answered a question in which that was alluded to. I haven't stated that as to my personal knowledge from the figures.

Q. Now will you state what was actually paid for engineering on the work done during this particular year 1900-1901 and to whom paid?

A. It would be impossible for me to give you those figures. So far as that service was paid for prior to March 31, 1901 it is in the Books; so far as it has been paid for since then, I don't know whether it is open to inquiry or not. I will only add that a part of whatever payments have been made, were made before that date, and a part has been made si-ce.

Q. So you cannot say what was paid and charged to construction account?

A. No sir, I would be unable to do that.

3532 Q. Well do you know it was $3800.00 or anything like that?

A. No I do not; I wouldn't be surprised if it did exceed that. That was a year in which a very large amount of work was done—the largest since the Wheeler and Parks contract was closed.

Q. When you say it may have "exceeded that" you refer to some amount that you would include since you testified here before?

A. That would be included, yes sir.

Q. How much was paid to Mr. Bowker that was paid to construction account?

A. I am unable to say now. His bills are here I suppose; I don't know about that. They are along with the Treasurer's records I presume—I am unable to say however.

Q. How much was he paid a month by you?

A. I engaged him at $90.00 a month and his travelling expenses.

Q. But you cannot tell how much of that was charged to construction and how much was charged to operating expenses?

A. No sir, I am unable to divide it.

Q. Up to the time you testified before in this case all that had been paid to you for engineering during this year had been the 1 per cent. on the water receipts or charges, isn't that so?

A. I am not quite sure. I made a trip to Washington and to New York in connection with a construction matter. I think those trips were in that year. With the exception of such trips all that was paid for my personal service was paid since then. I do not want to make a wrong impression here. During all the time that I was rendering this unpaid service, I will say with reference to construction, so far as my work was supplemented by my assistance in the office, their services were charged and paid for. When I alluded to my part which had not been paid for, I alluded solely to my personal services.

Q. Doesn't the engineer charge for work done for the

3533 year 1901-1902 a sum amounting to over $2,800.00 as figured into your construction account?

Mr. CALDWELL: We except to the question because he first states what the amount is and then asks if it is not there.

Sustained.

Q. I will ask you if the construction of this year 1901-1902 wasn't made directly by the water company through its salaried officers and employés?

A. The same general method applied in that year as did in the preceding year.

Q. I will ask you if the 20 per cent. that has been added on in your estimate of fair construction for this year doesn't amount to $9,671.50.

Objected to by Counsel for Complainant.
Sustained.

Q. And if this fact will not appear from additions made in your statement on pages "498" and "503" of vol. 2 in this case?

Objected to by Counsel for Complainant.
Sustained.

The further taking of this deposition was adjourned until Thursday morning, January 21, 1904 at 9 o'clock A. M.

3534 THURSDAY MORNING,
January 21st, 1904—9 o'clock a. m.

The further cross-examination of WILLIAM WHEELER resumed.

By Mr. PICKLE:

Q. Now Mr. Wheeler, I judge from your answer on yesterday that you apprehend that some portions of the cast iron pipe in the system of the Knoxville Water Company will have to be abandoned before the expiration of its life on account of the growth of the city. Will you please name what proportion and where situated that you have this apprehension in regard to?

A. No sir, I have no specific apprehension in regard to any particular parts of it, but simply resting on our experience here during the past 13 years I have no doubt there will have to be changes of pipes on account of growth of population and development of business.

Q. Then you have no specific portion of this pipe in view that would go into depreciation on that account?

A. I have answered that question.

Q. Isn't it a fact Mr. Wheeler, that your company has made some very injudicious and unprofitable extensions of your plant that have proven unremunerative, such as that in the 10th Ward and other directions?

A. I am unable to say that that is a fact.

Q. Sir?

A. Not that I am aware of. We made certain contracts with this city which it "repudiated," as you stated yesterday; that is the only significant fact that occurs to me at present.

Q. You say you made contracts which were repudiated. You brought suit and it was passed upon by the Supreme Court of the State against you—isn't that the contract you refer to?

A. I know of no other.

Q. The one that you sued upon and the question was decided by the Supreme Court of the state against you, wasn't it?

A. I have answered that.

3535 Q. Well isn't that true?

A. I have answered that.

Q. You can answer it again can't you?

A. I would if it did not seem to encourage you in asking more questions, and I choose to exercise my privilege in keeping this record as brief as possible consistent with my rights.

Q. So you don't know of any extensions made by your company that proved for a long time unremunerative?

A. I have given you all the information that I can on that subject.

Q. Well do you know of any such?

A. I think I have said that I did not, at present.

Q. What has been the policy of your company with reference to extensions?

A. At what time?

Q. During the time that you have been in charge of the company here since 1891.

A. It has been our policy to make extensions whereever required under contracts with the city to supply fire hydrants in accordance with the terms of that contract; it has been our policy to supply private consumers without any participation by the city where the income reasonably to be expected would pay a sufficient annual revenue to justify and support the extension; it has been our policy to make certain extensions, to reinforce the service which we are already rendering through the enlarging of our mains or furnishing additional trunk lines, although they yield no immediate revenue in themselves. I think that covers your question.

Q. Now Mr. Wheeler, you have filed a statement her- purporting to show an estimate of the going value or "going concern." Do you make no distinction between the use that is to be made of "going concern" in case where a property or plant is appraised for sale and transfer by the owner to a purchaser and taker, and in a case where the question is one of reasonable rates and where the company
3536 is to retain the use of its property and operate it?

A. I know of no modification of that value as affected by the considerations which you suggest. It is a concrete thing, as I understand it, and is not affected by the question as to whether it is something that is to be sold or something that is to be retained and yield its value to the present owner; in other words, it does not affect the question of whether it is to be considered in the hands of one owner or in the hands of another.

Q. And you think the same use is to be made of it in the case where the property is appraised for sale and transfer by the owner to another and in the case where the question is one of reasonable rates and where the company is to retain the use of its property and operate it?

A. I think the "going concern" is an element—a concrete, and specific thing, and its definition of valuation is not, so far — I can now see affected by who is the owner or who is to become the owner.

Q. Well now, "going concern" is no part of the physical plant is it?

A. It pertains to the physical plant and it connot exist without the physical plant.

Q. It pertains to the operation of the physical plant?

A. It grows out of the operation of the physical plant.

Q. In other words, it depends upon the business of the plant, doesn't it?

A. Yes sir.

Q. Now taking this plant here at Knoxville, its business consists of a certain amount of water taken by the city and certain other water taken by consumers, doesn't it?

A. Yes sir.

Q. The contract under which the water is taken by the city is contained in the original contract between the city and the water company under which this *pal*nt was erected, isn't it?

3537 A. So far as that business consists in the hydrant service, I think that is true.

Q. How do you get the business of water consumers; do you advertise or drum for it, or do they come to the office and solicit the supply?

A. Well it comes through various agencies and influences which may include both of those you mention.

Q. Isn't it a fact that practically all of your water contract- are made at your office upon the solicitation of the water consumer and without any advertising or any solicitation by agents of the com*ap*ny?

A. Well I don't know what you include under the terms "advertising or solicitation." The water company makes known that it is ready to do business in various ways. It prepares and issues its proposition in the form of rates, rules and regulations. It negotiates with manufacturers contracts or for extensions to serve them under established rates and rules, and by reason of these and other things, contracts are made, services extended, customers apply for the water and the business is built up in ways that are matters of common knowledge.

Q. Now the expense of all these things you speak about is paid as an entirely operating expense out of the income of the company by the city and people?

A. I cannot say that that is so, all of it. There is an increment of business or of value which accrues in the water works business as in others which can hardly be traced to any specific expenditure or act, but which is, nevertheless, an element of the property and to some extent the "going Value" of a plant, I think accrues through such agencies and through such causes.

Q. Well now the people of the city—I mean the consumers—and the city, furnish the patronage or business upon which this "going concern" is based?

A. "Going concern" rests upon the patronage of the city.

3538 Q. And the expense of the operation of the plant while this "going concern" is being applied, is paid as an operating expense out of the income of the company?

A. To such extent as it appears in the accounts it does, and no further.

Q. This thing that you call going value or "going concern" is

a matter that pertains to deficiencies in the operation of the earlier years or initiatory years of the plant, is it not?

A. It, as I have analyzed it, pertains to the deficiencies that *would accrue* in the case of what I have called an "assumptive plant," and it is true that it is somewhat analagous to the actual deficiencies that might obtain or might have obtained with an actual plant in its earlier history, but the thing itself is, in my judgement measured by comparison of present conditions with the conditions that would obtain with an identical plant assumed to be starting as of the time when the valuation is made, and would represent the deficiencies of earnings in such a plant.

Q. Well w-ether it would be a real plant or an assumptive plant it is the lat-er that you have taken in the present case?

A. I have alluded to both in my answer.

Q. It is supposed to pertain to deficiency in the income of the plant during the initiatory years of its operation?

A. I don't think I can answer that any better than I did in my last answer.

Q. Well you assume to have a monopoly of the furnishing of water to the city of Knoxville and the people of Knoxville, do you not?

A. I have not assumed that.

Q. Well you have no competition?

A. As a matter of fact there is no competition except such as the individual may create. Every individual may supply himself if he chooses. We have had competition in the past and it appears in this case that certain competing companies have been consolidated.

3539 Q. Don't you claim an exclusive privilege for the city of Knoxville?

A. We claim whatever our contract with the city gives us. I will not undertake to interpret it legally.

Q. Where was the competition you speak of in the past?

A. I alluded to the Lonsdale-Beaumont Company chiefly.

Q. Was that a competing company?

A. Yes sir to a certain extent it was, I think; not altogether. In other words it was in certain territory, but we virtually ceased to do business however, or to extend our business within the territory which it was organized to supply, when it began business.

Q. Mr. Wheeler, in the assumptive plant that you have taken up on which to estimate the value of "going concern" in this case, you have taken the income of the Knoxville Water Company for the year ending March 31, 1901, haven't you?

A. No sir.

Q. What year did you take?

A. I credited the existing plant with the income which it had for the year ending March 31, 1901. I credited the assumptive plant to which you refer, with no income at the beginning of that year after March 31, 1901, but for the first year with the income stated in the Table here against "first year."

Q. I will ask you if you haven't taken $77,026.00 as the income of the existing plant in your statement as to "going concern"?

A. That is correct.

Q. I will ask you if that sum is not the exact amount of income realized by the Knoxville Water Company for the year ending March 31, 1901 from water collection from consumers less the hydrant rental received from the city?

A. If I understand your question correctly, that is definitely so stated in my Table and in my explanation of it.

Q. Then the basis, so far as the existing plant is concerned upon which you estimate your "going concern" was the income
3540 from water for the year ending March 31, 1901, was it not?

A. I think so.

Q. Now you deducted in order to obtain a basis for your assumed plant from the actual water receipts of the Knoxville Water Company for that year the amount received from the city of $11,455.00, did you not in order to get your basis of $77,026.00?

A. Yes sir it is so stated. I have deducted from consideration altogether whether with reference to the assumed or existing plant, any consideration of hydrant rent, as stated in the explanation.

Q. Well now, in point of fact Mr. Wheeler, for that year the city of Knoxville actually paid to the Knoxville Water Company $11,455.00 under that clause of the original contract between your company and the city of Knoxville under which this plant was constructed, did it not?

A. If I understand you correctly I think that is true.

Q. Mr. Wheeler, suppose the city of Knoxville had agreed to contribute not only $11,455.00 as it did contribute under its contract for that year, but had agreed to contribute enough to yield a fair return to your company upon its investment, would you still take into consideration the "going concern" upon the question of reasonable rates between the city and its consumers and your company?

A. Well I cannot grasp the significance of that question. Do you mean had agreed to pay a specified sum different from what it does pay?

Q. A specific sum which would yield to your company a fair return within the meaning of the law or had guaranteed that amount to you.

A. Inasmuch as I eliminated the sum paid in specific terms for hydrant rental by contract, if that sum had been different from what it is it would not have affected my value of the estimate of "going concern."

3541 Q. But if the City has contracted in advance to contribute one-fourth or one-half or all of an amount equivalent to a fair return to your company, do you think that notwithstanding that fact the water rates to the city and consumers should be burdened with the value of 'going concern' and that this consideration should be entirely eliminated as you have done in this case?

A. I think your question involves reasoning in a circle. If the City, in terms, agreed to pay whatever the company should deem to be a fair return, it would cover all the company should claim, and the question would answer itself, I should say. If you care to mention any additional specific amount for hydrant rental, or any sum

I can deal with in accordance with the terms and considerations of public water service, I think I could answer your question.

Q. At any rate, the City did contribute that year under the original contract between the City and your company the sum of $11,455. to the income of your company that went toward satisfying the just demand of your company and your stock-holders for a fair return?

A. I am not sure that it went toward it; I don't know how you mean that to apply.

Q. Well, I will ask you to state what year of the operation of this plant—I mean computing from its institution—was the year 1900-1901, or the year ending March 31st 1901?

A. I should think it would be about the end of the 17th or 18th year of operation.

Q. Mr. Wheeler, do you in your estimating "going concern" upon your assumed plant here, give any value to that plant; if so, what is the value that you assume that such plant has?

A. To what plant do you refer?

Q. The plant upon which you make this estimate; you have nowhere stated what value you assign to the plant?

A. The existing plant?

Q. Yes sir.

A. Well I have testified several weeks of my views on that in this case.

3542 Q. But you have not stated in this connection what value you based this estimate upon?

A. In this estimate of going value?

Q. Yes sir.

A. I didn't think it was necessary to restate that part of it.

Q. Well, will you please state what value you give to the plant?

A. I would not repeat that General; that runs all through my testimony; that is another question and I have stated that my estimate of the value of the "going concern" does not logically rest upon the value of the plant itself, although as I have first stated and repeated, it does bear a certain relation to the physical values, and that relation I have already stated repeatedly.

Q. Well Mr. Wheeler, will you state now or will you refuse to state the value of the plant you had *in* mind when you made this estimate and value of "going concern"?

A. I will aid you all I can General, if you will ask me for something which I understand.

Q. Did you have in mind your valuation of $711,000.00 and some odd dollars as the value of this physical plant?

A. Inasmuch as I have stated I was proceeding upon an analysis which did not involve the consideration of physical values, I had no such value in mind, but I had not repudiated or abandoned any estimates of value which I had already set out in my deposition, nor had I changed my views on this subject for the purpose of making this particular analysis of the going value.

Q. So that Mr. Wheeler, this estimate as to the value of "going

concern" was made without reference to the value of any particular plant?

A. This second valuation of the "going concern" was made with respect to the earnings from this particular physical plant.

Q. Now Mr. Wheeler, do you take into consideration in
3543 making up the value of "going concern" that the incom- that you assumed as the basis was the result by the charging of the water Company of only reasonable rates?

A. So far as I have testified I have rested that value upon the charging of the existing rates which are in question in this case. I have considered the matter with respect to possible modifications of these charges.

Q. Is it not a fact that the very rates that yield the income that you assume of the basis in this case are the rates in controversy in this case and which the City of Knoxville has lowered by its ordinance?

A. It is true that the rates upon which this analysis rests to the extent of which I have already testified, are the rates that are in question in this case.

Q. And if the City is right, they are more than 20% higher than your Company was entitled to charge.

A. If the reasonable rates are limited to the extent involved by the City's ordinance, then that would reduce the value of the "Going concern" according to the principles of my analysis to about $103,000.00.

Q. And you mean upon the basis of excluding the hydrant rentals?

A. Yes sir, certainly; that is, substituting the city's rates for the rates that are now being charged.

Q. Mr. Wheeler do you think that the question of whether the amount which you assume as a basis for computing the "going concern" yields more or less than a fair return, enters into the question at all?

A. I don't think it does enter into the question of the going value. I don't see how the definition or essense of the going value admits of any other answer to that question. It might affect the whole of the return which the Company would be entitled to have of which the going concern rests upon a part, or would rest if the whole were separated into its parts or elements.

3544 Q. Well suppose this sum of $77,026.00 was in fact just twice as much as your company was entitled to receive on the basis of a fair return yielded by reasonable rates, wouldn't that affect the question of the going value of the plant?

A. It would affect it that way. As already appears in the last two or three questions and answers, my estimate of the going value as testified to when re-called, rested upon the rates which the company is now charging. As I have just stated to you, if the city's schedule of water rates were determined to be the reasonable rates then as I have already testified, the going value would be reduced from about $133,000.00 to about $103,000.00 as based on such rates.

Q. But Mr. Wheeler, if the "going concern" is to be computed upon what your company was entitled to receive as a matter of law by charging reasonable rates, then its entire income, not only from

water collections from private customers, but the $11,455.00 collected from hydrant services as well as other items of income should be taken into consideration, shouldn't the-?

A. It can be or need not be. If properly taken into consideration I think it would be applied equally to the existing and assumptive plant and therefore equalizes itself as being on both sides of the account; hence I leave it out.

Q. And should not the fact that the city in advance agrees to contribute the $11,455.00 toward a fair return enter into the consideration where the controversy is one between the water company and the city as a fair return?

A. I have taken it into consideration and given the city full credit for it. If I did not and assumed that the identical or assumptive plant had yet to acquire its hydrant rental by negotiating a contract with the city, then the analysis made on that assumption would show a much higher value of the "going concern."

Q. Now if there is to be any connection whatever between the value of "going concern" and fair return, must not there be
3545 a value fixed upon the plant, a thing that you have not done in making up the estimate in this case?

A. No, sir, it is impossible for me to conceive of that element by itself as being logically deduced from the value of the plant. It is of a nature which does not permit of it. It can be related to it by proportion according to some general law of relation in numerous cases, I think, but it cannot, independently of other cases be deduced from physical values—it is impossible.

Q. Well now what did you estimate to be the operating expenses of this plant that was to yield outside of hydrant rental $77,026.00 per year?

A. I did not undertake to deal with the specific amount or total amount of operating expenses. I dealt only with differences in the relative operating expenses of this plant and of what I have called the assumptive plant, since both plants I have assumed would have to bear the burden of operating expenses, differing only in the manner in which I have taken them into account and stated.

Q. Did you not have in mind any amount of the aggregate of the annual operating expenses of such a plant?

A. I took into account the actual operating expenses, whatever they were, and assumed that they would continue on that basis during the period of development of the assumptive plant, modified by differences only which I have stated.

Q. Well did you assume $35,775.00 as the operating expenses for the year 1900-1901?

A. I assumed nothing farther than I have stated.—My estimate in respect to that resting upon existing conditions; whatever those operating expenses were, I allowed them.

Q. Well now in your statement you estimate that during the first year of operation, the new plant, or the plant that you say was starting without a business would earn only 25 per cent. of what the existing plant is earning. How do you get at that per cent.?

3546 A. That is my judgment based upon my observations of the development of the business in somewhat extensive experience with plants. It really exceeds the average of the relative amount of business acquired in the first year compared with what is attained to in the eighth or ninth year of development.

Q. Well now suppose you add the hydrant rental to the $77,026.00 that you have taken and stated as the income of the existing plant and also to the $19,257.00 which you assume to be the 25 per cent. that the other plant would earn, and see what per cent. that would make?

A. No, I choose not; that is simply a mathematical problem and it adds no fact or opinion to this case.

Q. Wouldn't it make about 35 per cent.?

A. I cannot say; you can calculate it without the slightest inaccuracy, I have no doubt.

Q. So all of these per cents. you have calculated for eight years are merely assumed per cents. of your own?

A. They are the result of my judgment derived from experience, but reduced to a most conservative basis tending to a low valuation of going value: I will say generally in answer to what I think is an essential truth with relation to your request for the computation of the percentage, that it would not alter the rental a particle if you added that hydrant rental to both of those columns of figures; although you modify those percentages by adding hydrant rental to columns "3" and "4," when you carry out your analysis and complete it, you have exactly the same result which I have obtained.

Q. It would change the per cent. there from 25% to 35% and 40% if the hydrant rentals be added to both columns of those figures.

A. I leave you to figure that General.

Q. Well, Mr. Wheeler, assuming that you use the sum of $35,775.00 as the operating expenses, that sum being the amount claimed as shown by the books of the company for that year,

3547 you have arrived at the conclusion in this case that the new company collecting only 25 per cent. of the amount collected by the existing company would have operating expenses of the same amount as the old company less $11,164.00?

A. Yes, I think that is correct.

Q. In other words your computation shows that while getting only 25% of the revenue or income of the new company, it would have 75% of the expenses of the old company?

A. No, that is not my computation.

Q. Well, what per cent. of the expenses do you put?

A. I have assumed that it would save 75 per cent. of those expenses which would be affected by the reduced amount of business of the assumptive plant, or by the diminution in the quantity of water which it would supply.

Q. Well now isn't the effect of your first year's operation of the new plant that its operating expenses would be $24,611.00 while it would collect only $191,257.00 from water rentals?

A. If you choose to assume any particular sum like $35,000.00 as the present operating expenses, and you performed your sub-

traction properly, as I think you have, my answer to that question would be, yes. I have, in other words merely assumed that the operating expenses of the assumed plant would be $11,164.00 less than the operating expenses of this plant were in the year ending March 31, 1901.

Q. And your assumption is to the effect that a new plant put down in the city of Knoxville as of March 31, 1901, and charging the rates that your water company charges would require 8 years within which to get up to the standard of earning that your company had at that time?

A. My assumption is that if this plant instead of having been operating several years and acquired the business that it has were to have been created on the 31st of March, 1901, it would require 8 years in order to develop the amount of business which this
3548 plant actually had on that date. Eliminating future growth, I think that is an under-estimate of the time that would be actually required.

Q. What was the size of the city of Knoxville at that time?

A. I cannot state, General.

Q. Between forty and fifty thousand wasn't it?

A. I wouldn't undertake to state anything which the light of the census throws upon it.

Q. Mr. Wheeler, when you were on the stand before, you didn't remember any amounts that had been paid on "franchise." Since that time your brother, Mr. Elbert Wheeler, the Treasurer of this Company has been examined, and has produced the franchise account one item of which is "paid William Wheeler on account of litigation at Knoxville and Nashville $4741.87" as shown in Vol. 2 page 110 of the evidence in this case. Mr. Elbert Wheeler has shown on pages 126 and 127 of Vol. 2 is unable to explain on what account this was paid, or to give any itemized statement of it. I will ask you now to state on account of what litigation at Knoxville and Nashville this sum was expended, and when and to whom paid; give full items and explanation of it?

A. I don't think I can, General; I don't recall, nor have I any memoranda showing what it applied to.

Q. Well do you recall any litigation that you had at that time at Knoxville or Nashville?

A. I don't know what that litigation may have been intended to include. I know there were attempts at adverse legislation, and there were long negotiations with the City Council about that time in matters of new contracts and more or less litigation, but I don't recall the details of it.

Q. Well now isn't it a fact that there wasn't a single dollar paid in reference to litigation?

A. I wouldn't undertake to say; I don't know whether it was in the matter of suits before the courts or what it was. I now
3549 recall that in addition to the extended negotiations in 1891 and in 1893 with the city government and efforts at adverse legislation at Nashville, there was also application for injunction against the passage of some Act by the City Council which affected

the water company, but I don't remember the details specifically, nor do I remember the application of any sums. I think whatever sums were applied, were applied by way of services of Counsel.

Q. Well can't you give any account of this $4741.87 paid to you by your brother, the Treasurer?

A. No, sir; I presume some of it may have been my personal expenses, but I am not able to say what a single item of it was.

Q. You were present when I asked Mr. Elbert Wheeler about this matter?

A. Well, I am not quite certain; I think I was here when some reference or inquiry was made by you of him. I don't recall particularly.

Q. Well, about that injunction suit that you speak of; who was that attended by, your regular salaried counsel here, wasn't it?

A. I wouldn't be able to say, General.

Q. When was that, Mr. Wheeler?

A. I think in 1893.

Q. Now, Mr. Wheeler, don't you know, and are you not certain absolutely, morally and legally that this $4741.87, or a large portion of it was paid directly or indirectly to secure action of the City Council in the matter of releasing the limit placed upon the power of your company to mortgage its property?

A. I dont' think that a penny of it was.

Q. Can you state then where any one of those $100.00 was paid?

A. No, sir, I have answered you as fully as I can.

Q. It says on the books it was on account of litigation at Nashville and here, and you cannot give any information in regard to it?

A. No, sir, I cannot.

Q. Well you expended that sum some way?

A. I presume it was expended for such services.

Q. And you cannot explain it further?

3550 A. I cannot except so far as to say as paid for legal service it was done through Counsel.

Q. Well your regular attorn*ies* were under salary at that time weren't they?

A. They were for regular business of the company.

Q. What did you spend it for at Nashville?

A. I think it was for appearance before Committees; I would not undertake to say; I don't know General.

Redirect examination by J. W. CALDWELL:

Q. Mr. Wheeler, I wish to ask you about one matter that I omitted inadvertently in my first examination; something has been said in this record about possible contamination of the water pumped by the Water Company. Why was the pump station and intake of the Water Company placed where it is on the Tennessee river?

A. By virtue of a contract between the Knoxville Water Company and the City under which the works were constructed, which involved the use of the land, which the city had already purchased for that purpose.

Q. Did the Water Company ever make any effort to change the intake to a point higher up the river?

A. It did.

Q. Beyond the mouth of White's Creek?

A. Above the mouth of White's Creek and William's Creek; immediately on their acquirement of their interest in the property, Wheeler & Parks proposed to the City a plan for building new supplying water works above William's Creek, and to acquire the right to issue additional mortgage bonds for that and for other improvements. That general plan was embodied in the ordinance of 1891 to which I have already referred, and which was passed by the City Council, but vetoed by Mayor Kern. When the next City Council came in, the effort was renewed as I have already testified, and that ordinance provided for a new pumping station and supplying
3551 works above William's Creek and above the White Branch. That ordinance as has already appeared, though passed by the City Council was vetoed by Mayor Thompson. Those two efforts failing, the company then, in that same year, 1893, took other measures for improving the water supply by entering into contract with Wheeler and Parks, under which, among other things, the present filter plant was installed, and the cost of that work and the other improvements and extensions to that time were provided for through the issue of additional stock. The next step for the improvement of the supply was the erection of the intake tower which has been mentioned and the addition to the filter plant in the year 1900 or thereabouts, and at about that time the water company made a proposition to the city to conduct the drainage from the water shed tributary to White's Creek, or White's water branch by cooperation with the city in laying a sewer from a point where that branch empties into the river, to a new point of out-flow or out-fall below the intake of the water company. That proposition, in modified form, has since been agreed upon and arrangements therefore made for the removal of that menace to the purity of the water.

Mr. CALDWELL: I wish to introduce in evidence, may it please the Court, Chapter "113" of the Printed Acts of the General Assembly of Tennessee for the year 1891, being an act to extend the boundaries of the city of Knoxville &c. Approved March 25, 1891. Also Chapter "56" of the Acts of the General Assembly for the year 1893, being an Act to repeal an Act, entitled "An Act to extend the boundaries of the City of Knoxville, passed March 23, 1891, and Approved March 25, 1891."

Mr. CALDWELL: I would also like to know if Counsel for the City would admit the fact that after the passage of the Act of 1891
3552 just referred to, the Board of Public Works of the city of Knoxville gave direction to the water company to erect the hydrants that were erected by it in the old 10th Ward.

Mr. PICKLE: I don't know how the fact is. I will admit in connection with the fact the result of that litigation, making a statement with you.

COMMISSIONER: It is agreed that this matter shall be resumed when Mr. Kimball goes upon the stand.

Q. Mr. Wheeler, you were asked yesterday about those portions of the physical property of the Lonsdale-Beaumont plant which had gone out of existence. Why were those elements of that property considered in your original analysis and how were they treated?

A. They were considered in my analysis cost; my analysis was an analysis of all the property of the Knoxville Water Company, that is of the fair cost of all the property of the water company as it was built and created from time to time. I treated the West Knoxville portion however as of the time when it was acquired by the Knoxville Water Company, although as a matter of fact the Lonsdale-Beaumont plant was built some 7 or 8 years earlier, and had been in use up to and for a short time after its acquirements by the Knoxville Water Company. It was discontinued, as I think I have already stated, as a measure of reducing the aggregate charges involved in the continued supply of water to this community, and to all parts of it, including West Knoxville. In other words the burden that would be laid upon rates would be less by the discontinuance of the supply works of the Lonsdale-Beaumont plant, even though the cost of that plant as accrued depreciation were yet to be covered and refunded out of earnings, for the saving in operation expenses resulting from consolidation, exceeded, in my judgment, very much the interest charges on the property abandoned.

3553 Q. When your company purchased the Lonsdale-Beaumont plant it was held by its contract to continue the Lonsdale-Beaumont rates for that part of the territory already supplied by that plant, was it not?

A. It was.

Q. Now was it, in your opinion, conducive to economy in the operation of the consolidated plant to discontinue those parts of the Lonsdale-Beaumont plant referred to by General Pickle yesterday rather than to continue them in use?

A. I have no doubt that it was.

Q. When were the physical properties, especially the discontinued parts of the L-B plant constructed?

A. In the year 1892, according to my recollection.

Q. Had they been operated and used from that time up to 1901 as a part of the Lonsdale plant?

A. They had.

Q. And used in building up the income of that plant?

A. They had.

Q. You were asked about the services and I think you stated that the amount assigned to construction cost of services or investment value of services in your analysis began in the year 1895?

A. Yes sir, the amounts actually charged as a part of investment.

Q. If this plant is to be valued according to the method adopted in your analysis, I understand that you claim that you are entitled to that as a part of invested value.

A. Yes sir, what we actually expended, according to such estimate, as we can make of it on that account.

Q. Now why did you omit from your analysis the cost of services laid prior to 1895?

A. Because throughout that analysis I was endeavoring to make an estimate of the fair costs of whatever burdens the company and its promoters had assumed.

3554 Q. Now if you proceed to value the plant upon the basis of a replacement estimate, how would you then treat the services laid prior to 1895?

A. I should treat them upon the basis of what it would cost to replace them as of the date when the replacement estimate was made, and that treatment would not be affected by any method of financing the work as it may have been financed or performed prior to 1895, or to the date of the replacement assumed.

Q. Some extracts were read to you yesterday from a paper by Counsel for the city and in that connection you were asked if you had made certain statements at Dover, Maine—in the matter of depreciation estimated upon in the Dover and Foxcroft case—was there any analytical statement such as you have made in the Knoxville case made by you there?

A. At Dover?

Q. Yes sir.

A. Well I made analytical statements there but not with any such detail as I have made here. I made no analytical determination of depreciation there involving the consideration of any actual discontinuances or replacements, for the simple reason that no such discontinuances or replacements at that time had been involved in that work. No part of the work had been outgrown, or so far as appeared had been displaced, such replacements and renewals constituting however a very large factor in the depreciation of this plant, which I have computed as matters of fact in my analysis and not as matters of judgment, upon which I was forced to rely at Dover and Foxcroft solely.

Q. I wish to ask you to state how the hydrant rental in West Knoxville is paid; for so much per hydrant or otherwise?

A. In general the hydrant rental in West Knoxville is paid for in a lump sum for whatever number of hydrants may be set, not exceeding the number stated in the contract between the town of West Knoxville and the Lonsdale-Beaumont Water Company.

3555 Recross-examination by G. W. PICKLE:

Q. Mr. Wheeler, the ordinances to which you refer that were passed by the City Council and vetoed by the Mayor, and which you said had some relation to the intake tower, were the ordinances about which your company sought to have the bond limit existing under the original contract between the city and your company removed, were they not?

A. The ordinances did not involve any consideration of the intake tower, but they did involve the location from which the water should be taken from the river, and they provided necessarily for the issue of an additional amount of bonds in order to cover the work contemplated under those ordinances.

Q. And they were vetoed for the reason that they contained that provision releasing the bond limit of your contract, weren't——

A. Well I think that was one of the reasons set forth by the Mayor in vetoing them.

Q. I will ask you if this is not the provision with reference to fire hydrants in West Knoxville in the Lonsdale-Beaumont contract to wit; Sec. 17 of the contract:—"In consideration of the public benefit and protection to property resulting from the construction of said system of water works, the said West Knoxville hereby rents of said grantees 50 double nozzle fire hydrants, to be placed at such points on the mains as may be selected by said town council for the aforesaid period of 20 years, at an annual rental of $40.00 per hydrant; said 50 (double nozzle fire hydrants) and all additions thereto shall bear an annual rental of $40.00 per hydrant during the remainder of said period of 20 years, all of which annual rent of said hydrant shall be paid semi-annually on the first days of January and July of each and every year." I will ask you if that is not the contract also under which you collect hydrant rentals from that section of your plant lying within the Lonsdale-Beaumont territory?

A. That is the contract to which I referred.

3556 Q. Now the fact is that you collect for the 50 hydrants under that contract while in point of fact you have only 47 hydrants set in that territory, isn't it?

A. That is the fact, the city under that contract renting 50; that is the minimum number which they contract to pay for, as I understand the contract it being thus construed by the parties.

Redirect examination by Mr. CALDWELL:

Q. Mr. Wheeler, I hand you a paper entitled as follows: "Knoxville Water Company *vs.* Mayor and Aldermen of the city of Knoxville. Assignment of errors by defendant" having on margin of the first page in manuscript the words "Filed September 7th, 1887, (Signed) E. C. Reeves" and purporting at the end to have been signed by "Lucky and Yoe" and "L. A. Gratz, solicitors for defendent." Where did you get this paper?

A. I had this copy made from a copy of the record in that case that was certified by E. C. Reeves; my impression is that he was clerk of the Court. I had this copy made and verified it with that certified copy early in 1893, to the best of my recollection. I had it made along with copies of certain of the depositions contained in that record.

Q. Did you have a document of that title and that endors-ment?

A. I did.

Q. Which you read yourself?

A. I did.

Q. And compared this one with it?

A. I did.

Recross-examination by Mr. PICKLE:

Q. Is this a full copy of the paper from which this was transcribed?

A. Yes sir, of this particular paper, it is a full copy of the original.

Q. Well this copy does not contain any certificate of the Clerk, does it?

A. The copy from which I took this bore the endorsement
3557 "Filed September 7, 1887" and signed "E. C. Reeves."

Q. The paper from which you took this paper was not itself a certified copy, was it?

A. My understanding was that it was the record in that case. It certainly came from the Court-house.

Q. Where was this copy made?

A. I think it was made in Knoxville.

Q. By whom?

A. I cannot say who did the manual work of it now.

Q. Did you read or compare it with the other paper?

A. I did.

Q. Who assisted you in that work?

A. I think I did it alone.

Q. That is you read the other paper and then read this paper?

A. This is either a primary copy or a copy of a copy made and compared by me on or about March, 1893 and was compared with the record in the case of the Knoxville Water Company *vs.* Board of Mayor and Aldermen which was furnished me from the Court clerks' office; at the same time I made certain other copies from depositions contained in that record.

Q. If this was prepared from a copy, where is the copy?

A. My primary copy—I am unable to say whether this is a primary copy or a copy of a copy. As far as I know this is my original copy. I also made at the same time a copy of the decree in the same case which I have here.

Mr. CALDWELL: Mr. Wheeler, I will ask you to make this paper a part of your deposition, copying the same herein.

A. I will do so, and the paper is as follows:

3558 "KNOXVILLE WATER COMPANY
vs.
MAYOR AND ALDERMEN OF CITY OF KNOXVILLE.

Assignment of Error by Defendant.

Defendant by Solicitor, assigns errors to the rulings and decree of court below, as follows:

First.

The Court erred in holding that plea of defendant was insufficient. Plea Record p. 5. Order of Court Rec. p. 12.

Second.

The court erred in holding that complainant was entitled to relief sought in the bill, and in pronouncing decree, in favor of com-

plainant against defendant for Eight Thousand, Seven Hundred and seventy-five and 86/100 dollars and cost of cause.

Third.

The court erred in not holding that complainant was not entitled to relief sought; and in not holding contract with defendant, was void as a whole, or at least in part, and in not dismissing complainant's bill with costs, because:

First. There was no contract; parties having never concurred or agreed what was contract.

Second. Contract gives complainant exclusive rights and privileges to use of streets and for furnishing water for thirty years.

Third. Contract is in violation of a statute and Water Company's own charter, in that, City surrenders its power over streets and to control and regulate price of water to be supplied by complainant.

Fourth. Contract was never lawfully authorized.

Fifth. Contra- was *ultra vires* both as to complainant and
3559 defendant.

Sixth. Because consent of city, or defendant was procured by fraud.

Seventh. The ordinance, resolution or motion in Board of Mayor and Aldermen, was not passed by requisite vote or authority, but was passed by the votes of aldermen having adverse interests to defendants, and through fraud of said aldermen, one of whom was a charter member, director and officer of complainant at that time, and because other aldermen by whose vote same was passed, if they didn't then have adverse interest to city, afterwards became interested in contract for complainant, and against defendant, and all in violation of an express statute.

Eighth. Complainant had not, at time of bringing suit, and has not since, complied with its part of contract in this, that it never built works according to plan agreed upon; never built works in workmanlike manner; nor used proper materials; and had not finished work even as built within period required by contract, but used a wholly different plan, different weight and size of pipes, and built works of a greatly inferior kind to that required by contract, and never having complied with its contract, cannot call upon, or compel defendant to do so.

Ninth. Complainant cannot compel defendant, as sought in bill to accept works and pay for rental alleged to have accrued before works were finished, and when not finished within time stipulated in contract.

Tenth. Because contract does not require defendant to pay Fifty dollars — hydrant for hydrants over 75 as decreed by chancellor.

Eleventh. Because said contract and the attempted substitution of McDonough & Company contract for plans agreed upon in
3560 contract were conceived, procured and executed in fraud, and were and are against public policy and good morals, and to enforce payment by defendant, would be inequitable and allow complainant benefit of its own wrongs and frauds and those of its officers and agents.

In support of foregoing assignments and points at issue and facts bearing on same, the record is cited as follows:—

As to exclusive rights and privileges:—

Clause 2, on part of city, in contract; Record page 67.

As to surrender of contract and right to fix water rates.

7th. Clause contract record page 64 and Sec. 2 Acts 1877 page 129 Mil. & Ver. Code, Sec. 1966.

That consent of defendant was procured by fraud and not lawfully authorized and was void for fraud and *ultra vires* and that McDonough & Company contract was fraudulently substituted and that complainant never complied with contract, or that there never was any contract, minds of parties having never concurred; we cite following facts and evidence: J. M. Brooks falsely stated to council that he had no interest in complainant's charter; Record page 408. J. M. Brooks, secretary and director; Record p. 37. And contract was not for six months after organization; Record page 37. Held stock and never paid anything ($17,500 worth); Record page 37, Loweree's deposition. A. H. Martine's dep. Record p. 137, 193. Charter Record 7. J. M. Brooks, Rec. p. 233.

Company built according to McDonough & Company contract; Dep. E. F. Fuller, Rec. page 131. McDonough and Company contract Record page- 72 to 115. Original Moses Lane Plan and not McDonough & Company was plan contracted for; Dep. J. C. Luttrell, Record page- 210, 211; J. M. Brooks, Record page- 233, 234; John McCoy Record page- 359, 360, 362. S. T. Logan Record page- 370, 376, 378, 379. L. E. Craig, Record page- 381, 382, 383. J. S. Van Gilder Record page- 298, 299, S. B. Luttrell, Record page 355.

3561 Fact that all committee had copies of Moses Lane plan and McDonough & Co. as to size and difference in pipes of the two, record page 234, and depositions of the foregoing witnesses; and fact that committee actually filed copy of size &c. furnished by Van Gilder (Van Gilder copy record page 234). Deposition of C. C. Nelson record page- 405-6; exhibit and part contract, record page- 425–6. And Fulcher abstracted exhibit; deposition C. C. Nelson record page 410. And the absolutely conclusive fact; that water company expressly agreed to build according to Moses Lane & Co. shall "construct and establish a system of By-pass pipes, when Moses Lane plan had a stand-pipe and McDonough & Co. did not have a stand-pipe, but By-pass pipes." Contract record page 71. McDonough & Co. contract record page- 71–115. Dep. of Col. Lockett record page 151; also 157. M. F. Rouke record page 284. Moses Lane plan, title reservoir, record page 618.

That J. M. Brooks was representative of the Water Company in city council; Deposition of J. C. Luttrell record page 210; John McCoy record page 359; J. M. Brooks record page 229; Thomas A. Hudiburg record page 341; Minute of the city council record page- 454 to 564.

That water company was attempting to fraudulently palm off McDonough & Co. contract; See Brook's whole deposition; Loweree's

deposition and Lockett's deposition and notice of water company to City, record page- 264-5.

Brooks had McDonough & Co. contract and objected to reading at vote and if it had been, fraud would have been detected; S. G. Heiskell; record page 352. S. T. Logan; record page 379.

That Brooks and Staub were falsely claiming to be water committee with power to locate hydrants, or water company was knowingly ignoring city, or Loweree or Fuller have made false statements; Loweree, record page- 51-2. Fuller, record page- 120-1. That works were not completed before the end of the year as re-
3562 quired by contract and were inferior and not workmanlike in manner; See deposition A. H. Martine; record page 173. Where he says he took charge of the works on June 2nd, '84, that even "By-pass" specially contracted for was not put in when he took charge; record page 182. That works were not finished when he took charge; record page 185; Col. S. H. Lockett; record page 151; Charles Waring, Moses Lane's assistant, record page 391 *et seq.* defects; record page- 393-4-5. That Brooks, Fuller and Irvin were necessary to cast votes. Rec. 557 to 564; were interested adverse to company; A. H. Martine's dep.; Rec. p-.192, 3, 4, 5; Charter Record page 7; C. C. Nelson's dep.; Rec. page- 408, 409, 410. J. M. Brooks' deposition Rec. page 321; Again 228 229.

Every one of hydrants ordered within time allowed by City by Contract. Hydrants claimed as ratification were not put in until 1885, long after City had repudiated. Martine's Dep. Rec. p-. 178, 179 and all except two since suit brought. Rec. p. 150; Martine's Record page 180. Works never received; City Record page Schenck's deposition Record page 247. Resolutions, Board Record, page 407.

Refused to locate hydrants; Record page 571 and every act and meeting of Board from page 563 to 660.

And the committee appointed by Fulcher, Mayor (then a contractor and adversely interested to City) was appointed without authority of Board as records of the city show; Record page 576.

LUCKY & YOE AND
L. A. GRATZ,
Solicitors for Defendant.

(Endorsed: Filed Sept. 7th 1887.) (Signed) C. E. Reeves.

Mr. PICKLE: We except to the foregoing copy first, because it is not a certified copy of the original, and second, because it is not sufficiently shown to be an examined copy of the original.

3563 COMMISSIONER: The exception is over-ruled and the paper is admitted.

Mr. PICKLE: It is conceded that the clerk will make affidavit that the original transcript in this case has been lost, and formal affidavit of that fact is waived.

And further deponent saith not.

— —

3564 F. C. KIMBALL recalled on behalf of the complainant.

Examination by Mr. CALDWELL:

Q. Mr. Kimball, since your former examination in this case have you been over the books of the Knoxville Water Company as they have *they have* been put in evidence in this case?

A. I have to quite a considerable extent.

Q. Have you examined them with reference to matters covered by the deposition of Mr. William Nixon?

A. I have had Mr. Nixon's deposition specially in mind in the examination of these books.

Q. On page "116" of Mr. Nixon's deposition, he sets out the actual cost of the plant up to January 31st 1891, and gives the result as the cost of original construction from $110,000.00 to $112,000.00 and of the additions or betterments, as the books term it, to from $37,000.00 to $40,000.00, the actual cost of the plant in cash being to January 31 1891 about $150,000.00. On page "120" he repeats the statement that about $150,000.00 was expended through Loweree's administration and Martine's, and that this comes down to December 1891. On page 148 he again states that the construction cost was from $110,000.00 to $112,000.00 and that this cost is carried up to the time when the books were changed, and also that the additions and extensions from the original construction amounted to about $40,000.00, making the total plant at the end of say December 1891 from $150,000.00 to $153,000.00; further in the statement of original construction and operation from 1883 to 1891, which is filed as exhibit "A" to Mr. Nixon's deposition, he says that the books show the cost of original construction by Mr. Loweree as follows:—showing by several items a total of $112,271.97 and further down the table he adds "during 8 years" operation, additions and extensions were made, costing, as shown by the books;—"as follows, and then gives the totals of sev-
3565 eral items $41,863.60, adding that this includes some operating expenses and that the correct cost is probably not in excess of $40,000.00. Now I desire to ask you whether you have made an examination of the Loweree and Martine books, and state fully your method of calculations, and what these books show on their face to have been the construction cost of this plant to date when the so-called Loweree books were closed, and their balances carried into the so-called Martine books, and also to the date when the Martine books were closed, December 31, 1891?

A. I have made a thorough examination of all the books comprising these two sets, have traced all the entries in the cash and journal of the Loweree books into the ledger, and have balanced the Loweree ledger, with the result that, after eliminating all cross and duplicate entries, including all cash either paid in or paid out temporarily, and where the transactions were closed within the limits of these books, I found that cash to the amount of $142,142.82 had been paid in, and that the ledger balances in the so-called Loweree ledger, which were transferred to the new or Martine ledger also amounted

to $142,142.82, being made up in detail of the following accounts, to wit:

Ledger page	9	Street Account material	$41,927.89
" "	14	Real Estate	7,800.00
" "	17	Fire alarm material	1,625.13
" "	19	Fire alarm labor	427.95
" "	23	Pump Station labor	4,565.44
" "	29	Pump Station material	26,012.98
" "	38	Reservoir labor	12,139.23
" "	49	Street Account labor	6,049.95
" "	54	Force Main material	5,631.78
" "	55	Force Main labor	865.10
" "	77	Knoxville Water Company (Tapping a/c)	2,279.02
" "	82	Construction a/c	9,257.21
3566			
Ledger page	84	Reservoir Material	$11,189.97
" "	88	Expense Account	1,729.64
" "	89	Interest account	10,641.53
		Total	$142,142.82

There being no cash balance shown when these books were opened, nor any carried forward when the books were closed, this proves the correctness of the book accounts as to balances.

All the above accounts were carried forward into the Martine ledger, and subsequently closed into the construction or betterment account, except the items of Fire alarm material and fire alarm labor, aggregating $2053.08, which amount under date of August 1st 1890, was carried into operating expense account for some reason not explained, and is a part of the final balance charged to operation; the item of expense account, $1729.64 is carried into a similar account in the Martine books, while the item of interest $10,641.53 is also carried into a similar item in the Martine books. These four items aggregating $14,424.24 deducted from the total expenditures as shown by the Loweree books of $142,142.82 leaves a balance charged to construction on the Loweree books as of the date of closing of said books of $127,718.57.

A further examination of these Loweree books would seem to indicate that these four excluded items were items actually pertaining to construction rather than operation, but as the books show them charged to operation, no change in this distribution has been made by me.

With these balances carried forward into the Martine books and the same process being followed with this set of books as with the others, I find that up to December 31st 1891 the total receipts from all sources, after eliminating cross entries and transactions
3567 complete, both debit and credit within the limits of this and the Loweree sets of books amounted to $435,850.88, while the balances carried into the first of Elbert Wheeler's books of ac-

count as Treasurer, show expenditures,—including a cash balance on hand, December 31st 1891 of $556.17,—amounting to the same sum of $435,850.88 of which $210,071.75 are charged on the books and carried forward into construction accounts, and this represents the *prima facie* construction cost, eliminating stock, bonds and discounts on same as of this date, as shown by the books. Deducting from this $210,071.75 the construction accounts brought over from the Lowerce books of $127,718.57 leaves as the construction accounts due to the period from the close of the Lowerce books to December 31st 1891, $82,353.18.

Q. In looking over these old books do you, accor-ing to your judgment find the items of operating and construction expense uniformly charged correctly, or are there incorrect charges under the heading under which they are placed?

A. The larger part of these items it would be impossible to state without the vouchers, and even then, probably without a knowledge of the uses the material and labor were actually put to, whether they are properly charged or not. There are items which ultimately go to make up the construction accounts, which on their face are operating expenses, and the same remark applies equally as well to items which ultimately make up the operating aggregates which should be, in my judgment, construction accounts. So that, to the best of my ability in the examination of these books, and without vouchers or knowledge as to what the material was used for, and the labor used upon, I could not determine a positively correct division between these items and separate them actually as between operation and construction, and have simply, in my analysis as herein shown, as stated, accepted them as *prima facie* evidence from the books.

Q. Do you know of any means or methods by which in
3568 the absence of vouchers you could distribute the several items of construction and operating expenses with absolute accuracy under proper headings?

A. I could not do it, and in my judgment I do not believe there is information enough contained in those books to enable anybody to do it.

Q. Are there any vouchers in existence or available as aids to that end?

A. There are no vouchers covering the so-called Lowerce or Martine books in existence, so far as we know; and in this connection I will state that every possible place, both in this office and in Boston, has been searched, and not a single voucher or record of any kind covering these has come to my knowledge.

The further taking of this deposition was adjourned until 2 o'clock P. M.

THURSDAY, *January* 21*st*, 1904—2 o'clock p. m.

The further direct examination of F. C. KIMBALL resumed.

Examination by Mr. CALDWELL:

Q. Mr. Kimball, please give the items or ledger headings in the Martine books, going to make up this construction cost of $210,071.75 to which you have referred above?

A. These items are as follows:

Ledger page	230	Betterment Account	$193,710.81
" "	243	Real Estate	11,689.89
" "	246	Legal Expense	1,757.25
" "	269	Personal injury	1,000.00
" "	273	Office Furniture	350.71
" "	276	Jackson Street extension	779.79
" "	279	Patton Street Extension	49.57

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Ledger page	280	West Fifth Ave. Extension	$363.74
" "	281	East Clinch Street "	204.85
" "	282	Magnolia Avenue Extension	145.66
" "	283	Crozier Street "	9.48
		Total	$210,071.75

Q. Now can you divide this betterment account into its several sub-divisions corresponding somewhat to those given in the Loweree books?

A. This betterment account of $193,710.81 divided as near as possible into similar accounts as shown in the Loweree books, is as follows:

Force Main Account	$6496.88
Tapping Account	1554.78
Construction Account	7958.24
Reservoir Account	30300.38
Street Account	98339.38
Pump Station Account	45208.57
Meter Account	217.26
Sundry betterment % to bal	3635.30
Total	$193,710.81

Q. On page 120 of his deposition, Mr. Nixon states that he finds from an investigation of the books that of the $125,000.00 issue of bonds, about $110,000.00 or $112,000.00 went into the plant, and of the $85,000.00 debentures $59,000.00 and some odd dollars went into the treasury of the company. He further states that the second issue of $25,000.00 of bonds, seems to have been credited to the account of Mr. George P. Sheldon without going into the treasury of the company, although this issue of $25,000.00 was credited to his account as $23,750.00. Have you, from your examination of

these accounts found out who took the several issues of bonds of this company, and what prices the books show they paid for them?

3570 A. Of the issue of $125,000.00 of bonds, George W. Ballou appears to have taken $61,000.00 for which he paid $59,450.00 and George P. Sheldon appears to have taken $64,000.00 for which he paid $62,400.00 making the total receipts from this first issue of $125,000.00 of bonds, $121,850.00. Of the second issue of $25,000.00, George P. Sheldon took them all at $23,750.00 and these are fully accounted for at this price on page "14" of the Martine journal. The debenture bonds seem to have been issued in two lots of $50,000.00 and $35,000.00 each. The first issue of $50,000.00 are credited as having been sold at par on the books of the company, except a discount of $25.00 on $4000.00 worth of bonds issued to E. J. Sanford. This issue of $50,000.00 was taken and paid for by the following parties, to wit:—

George P. Sheldon	$23,000.00
E. J. Sanford	14,975.00
C. M. McGhee	10,000.00
R. N. Hood	1,000.00
F. J. McNulty	1,000.00
Total	$49,975.00

The second issue of debenture bonds amounting to $35,000. were apparently sold at a discount of 20 per cent. and taken by the following parties at prices stated:—

C. M. McGhee, 15 notes	$12,000.00
Geo. P. Sheldon 7 "	5,600.00
Party, name not given 7 notes	5,600.00
F. J. McNulty 3 notes	2,400.00
E. J. Sanford, 2 notes	1,600.00
R. N. Hood, 1 note	800.00
Total 35 notes at $1000.00 each, netting	$28,000.00

For these four issues of bonds and notes, there was received in cash or its equivalent and properly entered and credited on the books, $223,575.00.

3571 Q. Now please state all that the books show as to where the $142,142.82 which you state the Loweree books show was paid in during the period covered by the Loweree books, came from?

A. The Loweree books books show that G. W. Ballou paid in cash, at various times, after eliminating all credits &c.	$70,796.67
George W. Sheldon paid in cash	46,707.12
Interest and expense account of G. W. Ballou	1,422.75
Interest and expense account of Geo. P. Sheldon	11,080.28
Cash bills paid by Sheldon	12,136.00
	$142,142.82

2193

These cash items and payments by these two parties are accounted for on their several accounts as follows:—

By proceeds of bonds G. W. Ballou	$59,450.00
By proceeds of bonds Geo. P. Sheldon	62,400.00
By balance of account Geo. P. Sheldon, carried into Martine books	20,292.82
Total	$142,142.82

The books further show that George P. Sheldon settled with G. W. Ballou for the balance of $12,769.42, which Ballou had paid in, or for the company in excess of what he received from the bonds, and this balance is included as a part of the balance carried forward of Mr. Sheldon.

Q. You have stated that the total cash receipts of this company to December 31st 1891 from all sources was $435,850.88. Please give the items shown by the books going to make up this amount?

A. The books appear to show that, after eliminating all cross entries and temporary receipts settled within the limit of the Loweree and Martine books, the actual receipts were as follows:

3572

Proceeds of 1st issue of $125,000 bonds	$121,850.00	
" " 2nd " " 25,000 "	23,750.00	
" " 1st issue of 50,000 debenture notes	49,975.00	
" " 2nd " " 35,000 debenture notes	28,000.00	
Total for bond and debenture notes	$223,575.00	$223,575.00
Receipts for water rents actually collected to Dec. 31, 1891	$160,501.31	
Receipts for hydrant rentals, actually collected to Dec. 31, 1891	43,050.50	
Total from water rates		203,551.81
Bills payable 3rd Nat'l Bank		3,000.00
Wheeler & Parks		5,724.07
		$435,850.88

Q. You state also that the balances as of December 31, 1891, carried forward into the first book of accounts of Mr. Wheeler as treasurer, credited this same sum, and you have given the details of the construction account. Please give the total accounts carried forward which go to balance the income?

A. The amounts carried into the new ledger on December 31, 1891, are as follows:—

Profit and Loss Account.

Ledger page	225	Operating expense	$106,170.23	
" "	246	Legal expense	3,000.00	
" "	269	Personal injury	3.00	
" "	240	Interest account.....	115,349.50	
				$224,522.73
		Construction a/c heretofore given.....		210,071.75
" "	176	Supplies account.....		229.03
" "	263	Bills receivable.....		135.00
" "	275	Sundry accounts.....		141.20
" "	304	American Loan & Trust Co.....		195.00
Cash on hand Dec. 31, 1901.....				556.17
Total.....				$435,850.88

3573 Q. On page 839 of his deposition, Mr. Nixon states certain eliminations which in his judgment should be made from the operating expense accounts for the years 1900–1901 and 1901–1902, and appears to refer only to voucher numbers and items. I wish you would go over that list of eliminations, item by item, and give the voucher numbers and explain each in brief?

A. His first eliminations appear to be from *Insurance* Account:—

Voucher 256: Hartford Steam Boiler Inspection & Insurance Co. Three years' policy on Boilers at filter station $50.00, ⅔ deducted $33.33

He has not however added in other years in which no payments were made on existing policies any part of this eliminated account, although this policy covered a period of three years.

Voucher #385: American Surety Company. Bond of F. C. Kimball one year..... 25.00

Agreement and directors' votes require payment by company in addition to salary.

Mr. PICKLE: I will require the production of the directors' vote on that subject authorizing these payments, and I so give notice here.

Voucher #994: Hartford S. B. I. & I. Co. 3 years' policy on boilers at Pump Station $125.00, ⅔ deducted, or a deduction of 83.34

Nothing at the Pumping Station is added for boiler insurance in the other two years covered by the policy from which this deduction was made.

3574 Voucher #1091: Bill Chas. F. Parks as surety for Treasurer for 1900..... 30.00

Voucher #1092: Bill William Wheeler as surety of Treasurer for 1900..... 30.00

As regards these last two items the directors' votes require payment by the company in addition to salary.

Total deductions Insurance A/c..... $201.67

From Taxes Account.

Voucher #607: William S. Morgan, Sec'y of State Consolidation tax..... $965.00
Voucher #1149: State, County and Road Taxes in 1900 on 10 acres in 12th District (embraces the Tillery Spg's lot, Old L. B. Pumping Station lot & L. B. Standpipe lot without stand-pipe)..... 20.28

Total deductions taxes account..... $985.28

From Fuel Account, L. B. Company.

Stock account Mch. 31, 1900, 43½ tons coal at $1.45..... $63.08
Voucher # 5: Unloading car coal..... .90
Voucher #27: Freight on coal..... 21.90
" #32: Unloading car coal..... .90
" #39: Freight on car coal..... 22.94
" #43: Unloading car coal..... .90
" #65: " " " ..... .90
" #97: Bill C. C. Sullins, Coal..... 21.46
" #98: " " " " 4.97
" #99: " " " " 18.98
" #228: " " " " 37.45

Total deductions Fuel Account of L. B. Co..... $194.38

All of the above coal was legitimately used to operate the
3575 L. B. Station prior to the physical consolidation of the two plants.

From Repairs Account.

Voucher # 35 (not #45 as given): Bill of Knoxville Iron Co. for 2 second-hand hydraulic jacks used in repairing pumping machinery.. $48.20
Voucher #472: Bill of H. Nicholson for sundry drafting tools destroyed in use and replaced..... 5.00
" #584: Bill of B. B. Dallas for furnishing and preparing "I" beams set in place of original ones, used to support sundry pipe lines over creeks, bridges, &c..... 64.74
" 441, 442 and 463 (not 443 as given:) Receipts of Wesley Hurd for furnishing and setting stone in place of former supports to stairs at pumping station..... 25.00

Total..... $142.94

Also from painting stand-pipe which is closed into Repairs Account in the Treasurer's statement, amounting to $829.53. This amount of $829.53 for painting stand-pipe is fully covered by vouchers, although Mr. Nixon on page 840 says there is no voucher, and is made up as follows:—

For labor,	Voucher	# 481	$3.90	
	"	# 591	71.70	
	"	# 600	93.00	
	"	# 631	74.10	
	"	# 639	61.27	
	"	# 724	62.10	
	"	# 742	79.20	
	"	# 790	51.22	
3576	Voucher	# 806	65.63	
	"	# 831	32.10	
	"	# 904	31.20	
	Total Labor		$635.42	
For Material,	Voucher	# 551	$4.45	
	"	# 585	5.00	
	"	# 589	.61	
	"	# 593	15.84	
	"	# 599	.31	
	"	# 623	4.01	
	"	# 626	2.18	
	"	# 654	2.00	
	"	# 655	8.00	
	"	# 749	.66	
	"	# 751	1.95	
	"	# 781	6.50	
	"	# 803	.69	
	"	# 884	2.50	
	"	# 895	206.72	
	"	# 912	3.63	
	"	# 958	8.00	
	"	# 1004	164.16	
	Total Material		$437.01	
Deduct material sold			$6.40	
Stock on hand M'ch 31, 1901			226.50	
				232.90
Net cost of material used this year			$204.11	
Total Painting stand-pipe				$829.53

all of which was necessary and legitimately used. Adding this to Mr. Nixon's deductions on Repairs account of $142.94 makes a total Deduction Repairs Account 972.47

3577 *From Pump Station Account.*

All the deduction that is made in this account is to reduce the book account of pumping station of $3,948.19, by the increase in the amount of stock on hand at the end, over what there was at the beginning, this increase amounting to $251.04. No payments on this account are questioned. The Treasurer's ledger, page "426" as vouched for by the Cash and Journal, show actual payments on this account of $4,226.01, with credits of $26.78, showing net cash paid on this account of $4,199.23. From this amount is deducted on the books the increase in stock account of $251.04 to obtain the book balance of $3,948.19, and to now again deduct this $3,948.19 is a second deduction of this increase.

From Salary Account.

From F. C. Kimball's salary (stated as having no voucher).. $500.00

This salary account is fully shown by vouchers # 70, 222, 278, 384, 502, 606, 748, 859, 943, 1111, 1181 and 1223, upon which the aggregate distribution to Salaries amounts to $1,500.00 and to Construction $500.00. As his services were devoted to the operation of the plant fully three-quarters or more of the time, and in view of all that has been said as regards this account, no further statements by me as to the justification of a still further addition to Construction account, is necessary.

Voucher # 346 (not 2343 as given): William Wheeler.....	$229.63	
" # 829: William Wheeler, given in Mr. Nixon's Deposition 839 without voucher number as		
3578 $326.50, while voucher is.....	226.50	
Voucher # 1021: (No voucher given by Mr. Nixon,) William Wheeler...	234.97	
" # 1281: (No voucher number given by Mr. Nixon,) William Wheeler.....	240.19	
Total as Salary as Supervising Engineer...	$931.29	
Which Mr. Nixon reduces ½ or.....		$465.64

In view of all that has been said in relation to this account, no further explanation seems to be necessary as to this reduction.

Salary of E. Wheeler, the Treasurer, amounting to $1,396.96 as stated by Mr. Nixon, page 839, is reduced ½ or..... 698.48

on the ground that this amount should be charged to Construction. This matter also has been sufficiently well ventilated to require no further explanation from me.

From Expense Account.

Voucher # 137:	Contribution Fire & Police Souvenir.....	$25.00
" # 151:	Testimonial to C. L. Ewing, Supt. S. R. R.	5.00
" # 216:	Dues, Chamber Commerce.....	2.00
" # 217:	Cigars.....	3.25

It is submitted that the above are all properly vouched for and perfectly legitimate operating expenses for a corporation like this.

" # 331:	Mary J. Blanc. Rent of spring used to supply water to Lonsdale plant. Discontinued after complete consolidation but absolutely required during this time, as a supply for that partion of the plant.....	75.00
3579		
Vouch. #473:	P. J. Griffin, Rent of Spring..... Same remarks apply as to Voucher #331.	50.00
" #374:	C. C. Nelson, Recorder, for copying sundry ordinances pertaining to this Company.. These were needed in the proper operation of the corporation.	8.00
" #572:	Contribution to Galveston Flood Sufferers..	5.00
" #644:	Advertisement in Carnival Edition Sentinel	25.00
" #759:	(Not 760) Advertisement in Carnival Edition Journal	25.00
" #853:	Contribution to New Hospital.....	15.00
" #979:	Chamber of Commerce Entertainment of Nashville guests $3.00, although Mr. Nixon makes a reduction of.....	5.00
" #628:	(No number given by Mr. Nixon) Contribution to Carnival.....	25.00
Oct. 27.	Expense C. T. Cates, Jr. draft, being for legal expenses.....	300.00
Vouch. #829:	Bill William Wheeler telegram from Boston.....	.97
	E. Wheeler	13.23

This item of $13.23 does not appear on the books in the expense items, and do not see in Mr. Nixon's failure to give its voucher number where he found it to reduce. If not on the books, it cannot be deducted.

Total from Expense Accounts..... $582.45

3580 *From Spring Rent.*

Vouch. #473: P. J. Griffin, Rent of Spring $50.00

(This amount was deducted in Expense account above See Voucher 473, and taking it out now results in twice reducing it.)

" #903: P. J. Griffin, Rent of Spring in full to Dec. 31, 1900..... 40.00

Same remarks apply to this as to voucher #331 in Expense Account, the use of these springs being necessary to supply the Lonsdale plant with water as long as that plant was required to be operated.

Total from Spring Rent (No voucher number is given by Mr. Nixon..... $90.00

From Electrical Survey.

Vouch. 1013: Petty Expense materials..... .50
" 1014: Pay-roll..... 2.50
" 1028: Pay-roll..... 3.96

Total from electrical survey $6.96

(No voucher number is given by Mr. Nixon) This was for ordinary labor and material to ascertain whether or not the pipes were effected by electrolysis, and is properly covered by vouchers.

Total deductions in 1900–1901 by Mr. Nixon as above. $4948.41

On pages 94, 95 and 96 of Mr. Nixon's examination in chief, he sets out these deductions in detail. He there has the $8.00
3581 item covered by voucher #374 as being a copy of Commissioner Caldwell's Report in the Chattanooga case; whereas it is a copy of City ordinances of Knoxville relating to the Knoxville Water Company. He also states that contributions amounting to $25.00 each were made to the Knoxville Sentinel and the Journal and Tribune, whereas the vouchers show these payments to be for advertising.

The voucher without number given by Mr. Nixon on page 839 as a reduction from Expense Account, E. Wheeler $13.23 appears in his deposition page 97 as being an account of William Wheeler dated April 2, 1900. The only voucher of William Wheeler of this date charged to expense, is the one entered upon Journal page "98" *p.* of Elbert Wheeler's first book of accounts, and refers to business in the years 1899-1900, and is not in any way connected with the year-1900-1901 in question, and not having been in the accounts for the year under scrutiny cannot be deducted from it.

On pages 94, 95 and 96 Mr. Nixon has nothing whatever to say about the reduction of item of painting stand-pipe, which comes out however in his cross-examination; neither do the items of spring rent $90.00, nor electrical survey $6.96 appear in Mr. Nixon's direct examination, but are included in list given in re-direct examination.

Coming to the reductions made by Mr. Nixon for the years 1901-1902, he first states that items in operating expenses for this year aggregate $37,084.52 instead of $37,003.25. The Treasurer, page 8 of his deposition, gives these expenses as $37,003.25. In the Treasurer's books on journal page 256,

3582 Profit and Loss Account, debtor to sundries, gives items to balance amounting to..... $106,389.24

Deducting therefrom the following, not being strictly operating expenses, to wit:

Abatements.....	$4502.01	
Interest.....	30070.57	
Rebates.....	327.65	
Surplus.....	34485.76	
		69,385.99

leaves as strictly operating expenses per books..... $37,003.25

this agreeing with the Treasurer's deposition. Accepting this and also Mr. Nixon's amended allowance for operating expenses for this year as shown on page 817 of $30,279.24, makes the reduction proposed by him $6724.01 instead of $6805.27, while if his reduction of $6805.27 is correct, he only allows $30,197.98 instead of $30,279.24 as given. Items of reduction are as follows:—

From Insurance Account.

Voucher 1539:	American Surety Co. Bond of Frank C. Kimball, Supt.....	$25.00
" 1792:	American Surety Co. Bond of W. H. Roberts, Cashier.....	12.50
" 2040:	Chas. F. Parks as surety for Elbert Wheeler, Treasurer	30.00
" 2102:	William Wheeler as surety for Elbert Wheeler, as Treasurer...	30.00
Total from Insurance Account.....		$97.50

The same remarks apply to this as to similar items in the previous year, they being covered by votes of the directors. In this Insurance Account for this year, is not added any proportion of the Boiler Insurance de-
3583 ducted in the former year although extending through this year.

From Taxes Account.

Vouch-: (No number given by Mr. Nixon) State, County and Road Taxes for 1901 on 10 acres in 12th District $20.29, although Mr. Nixon reduces it $20.28

Same remarks as to voucher # 1149 in previous year.

From Pump Station.

This reduction is stated to be (page 840 Nixon.) Increase in supplies on hand..... $961.09

No payments in this account seem to be questioned, the book account, as well as Treasurer on page 8 of his deposition stating this account to be $4603.74. The Treasurer's Ledger, page 426, as vouched for by the Cash and Journal, show actual payments on this account of..... $3,948.96

At the beginning of this year, there were supplies on hand charged to Pumping Station of..... $693.09

At end of the year..... 38.31

Showing that there had gone out of this account supplies valued at..... $654.78

Which to balance this account must of necessity be added to actual cash expended to get the total expenditure in cash, stock, &c. on this account, amounting to..... $4,603.74

thus agreeing with both the Treasurer and the books. This item is explained by the Treasurer in his cross-examination on pages 93 and 94 of Elbert Wheeler's Deposition.

3584 *From Filter Account.*

This reduction of $196.65, is stated to be by Mr. Nixon, on page 840 as increase of supplies on hand. No payments in this account seem to be questioned; the book account as well as the Treasurer on page "8" of his deposition stating this account to be..... $2561.46

The Treasurer's ledger, page 420, as vouched for by the Cash and Journal, show actual payments on this account of..... 2444.03

At the beginning of the year there were supplies on hand charged to filter plant of..... $142.40

At the end of the year..... 24.97

Showing that there had gone out of this account supplies valued at..... 117.43

Which to balance this account must of necessity be added to actual cash expended to get the total expenditure in cash, stock &c on this account, amounting to..... 2561.46

this agreeing with both the Treasurer and the books. This item is also explained by the Treasurer on page 92 of his cross-examination.

From Salary Account.

From F. C. Kimball's salary (stated as having no voucher) one-half or..... $1000.00

This Salary account is fully shown upon vouchers # 1296, 1440, 1472, 1589, 1691, 1735, 1876, 1938, 2010, 2114, 2182 and 2248, the aggregate of which is $2100.00 as salary in total for this year. These vouchers and the cash book show that this total of $1725.00 is dis-
3585 tributed to Salary Account, and $375.00 to Construction. A reduction therefore of $1000.00 from Salary account leaves therein as allowed F. C. Kimball on account of "Salary" $725.00 for this year. If the intention was, as stated, to allow one-half of his salary to Salary Account or $1050.00; as to the balance of $1050.00, $375.00 is already charged to Construction there would be only $675.00 additional to so charge, making in a reduction of $1000.00 $325.00 too much. In the light of previous remarks upon this subject, no comment of mine is necessary as to whether any reduction should be made or not.

Vouchers 1500, 1791, 2101 and 2290, being William Wheeler's quarterly bills for salary, aggregating $1028.48, ½ of which or..... 514.24

is disallowed as being properly chargeable to Construction. This item has also been thoroughly gone over.

Salary Elbert Wheeler, Treasurer, $1505.22 ½ of which or 752.61

is disallowed as being properly chargeable to Construction. The same remarks apply to this as to Other Salary items.

Total deductions from Salary Account..... $2206.85

From Repairs Account.

Voucher 1365: C. A. Rosenbeck, sundry painting..... $75.00
of which..... $25.00

charged to Repairs, Painting Pumping Station is disallowed.

3586

Voucher 1495: B. B. Dallas, making and putting up breeching to old boilers..... $138.50
" 1445: C. A. Rosenbeck, painting interior of pumping station..... 98.00
" 1789: A. Greenwood & Co. Painting at Filter plant..... 70.00

Voucher 2015: Southern Brass & Iron Co. for sundry pipe coverings used at Filter plant to cover steam and water pipes in renewal of covering requiring replacing..... 14.14

" 2087: Henry R. Worthington, vacuum pump to replace one formerly on Deane pump at River Station, worn out in service..... $176.00

Boiler Feed Pump at River Station to replace others worn out in service..... 122.00

Vacuum pump at High Service Station, to replace one formerly there and worn out in service 124.00

$422.00

Total for Repairs Account..... $767.64

All of the above items are in renewal or replacing of parts of the plant worn out, or in ordinary repairs necessary to keep the plant in proper physical condition for economical operation.

3587 *From Expense Account.*

Voucher 1368: Contribution to Elizabethton Flood Sufferers..... $10.00

" 1376: William Wheeler, Expenses, &c. Trip to New York, consultation with Col. Henderson, Counsel of the So. R'y..... 62.50

" 1454 (Not 1451 as given): Frank C. Kimball expenses to Boston, Providence, R. I. and Nashville, Tenn. in interest of Company and on Company's business, having particular reference to an examination of a system at these places of keeping meter accounts, &c..... 148.30

" 1627: American Bank Note Company, printing 500 Litho-stock certificates, Preferred Nos. 501 to 1000, bound in two books..... 42.50

This last item being for reissue and transfer of stock, and not for new issues.

Voucher 1694: Re-fund of water bill to S. M. Littleton 4.63

Should have been charged to rebates but was to expense; both however are operating accounts.

" 1713: A. H. Daley, injury to mule..... 125.00

This payment was made on account of injury to mule, caused by getting its foot into a gate box corner Hill and Gay Streets, the cover of which had disappeared and had nothing to do with construction, being an accident due
3588 entirely to operation and therefore an expense.

Vouch. 1730: Receipt of Clerk and Master of Chancery court for costs of suit Knoxville Water Co. *vs.* Mayor & Aldermen 25.85

This was a suit on account of an extension and hydrants ordered by City in the ex-Tenth ward and payment made was legal costs to Water Company, in that suit, and therefore expenses.

" 1816 (Not 1888 as given): Petty Expense..... 3.00
being contribution to Chamber of Commerce on account of Reception to Capt. R. P. Hobson.

" 1897: Refund of water bill to S. N. Littleton..... 4.63

" 2002: Bill of John F. Edington, for transcribing Brief in case Knoxville Water Co. *vs.* Mayor & Aldermen ..... 14.5[illegible]

This bill is vouched and distributed to "Water Rates Litigation" on its back and so entered on the Treasurer's Cash Book page 39. Having never been changed to expense it cannot well be deducted for any reason.

" 2101: William Wheeler, sundry expense March to December 1900..... 218.27

" 2290 (Not 2102 as given): William Wheeler sundry expense..... 269.45

Of the above bills, the first one comprises items of expense of W. W. to New York $17.90 and to Washington $38.60, on account of Company's business, sundry telegrams $6.77 and re-tracing City Pipe plans worn out in service $155.00. The second comprises items of postage and internal revenue $5.78, express $ .30 Blue prints $4.72, and re-tracing City Pipe plans $258.65. All these seem to be self-explanatory. The largest items, tracing plans, being for renewal of the tracings of plans in constant use at the Knoxville office since 1894 and 1895, and were done in the Boston office, both on account of the facilities in men and material there to do them, and because no one in the employ of the company at Knoxville, on regular salary, or otherwise, had both the time and competency at command to do this work.

3589

Vouch. 1224: Knoxville Typewriter Exchange.. 61.50

The bill is for $91.50 this being net amount after deducting $15.00 for old typewriter returned, and is for new typewriter and fittings to replace the old one. Mr. Nixon apparently has only deducted a portion of this bill.

" 1368 (No voucher number given by Mr. Nixon): Expense Account visit H. M. Payson & Co..... 4.94

These were bankers investigating financial affairs of the company.

Total Expense Account... $995.07

Although Mr. Nixon on page 841 of his deposition gives total eliminations from Expense Account as..... $1083.32

From L. B. Company repair items..... 255.60

No voucher numbers are given for these items by Mr. Nixon on page 841, they are not separated, neither do they appear in his original deductions

3590

on pages 103 to 107 of his examination in chief. We are unable to find any such items or amounts charged as expenses in the year 1901–1902, and therefore not being charged, cannot be eliminated.

From water rates litigation account $1156.34

This covers all items entering into this account between April 1st 1901 and March 31st 1902, none of which are allowed by Mr. Nixon, although it is understood that there is no question as to the Company paying them, being supported by vouchers in all cases, and as to whether this is a proper operating account or not, it is not for me to decide, although there would appear in my judgment little or no question about it.

Total eliminations per Mr. Nixon page 841 of his deposition for year 1901-1902 ..... $6805.27

On pages 104, 105, 106 and 107 of Mr. Nixon's Deposition in his examination in chief, he sets out these deductions or eliminations in detail. He first states that there is a difference in Repair Account as shown by the books, $2669.19 and that shown by General Wheeler $2924.79, a difference of $255.60, which may be what he, on page 841 ascribes to L. B. Company Repair items. An examination however of the Profit and Loss Account for the year in question, as shown on page 256, of the journal of the Treasurer's Accounts, disclose the following entries, to wit:—

Repairs	.....	$2669.19
Painting stand-pipe	.....	134.33
Reservoir repairs	.....	78.30
3591 Hawley Down Draft Furnace Co.	.....	42.97
Total as used by Treasurer	.....	$2924.79

It is evident that none of these are "L. B. Company Repair items." Further, on page 107 Mr. Nixon says: "I have also allowed the "charges $78.30 for reservoir repairs and cleaning without change, "also the uncollected claim of $42.97 against Hawley Downe Draft "Furnace Company. The last two items I have added to the 'Re-"pair Account," &c. So it is evident that some other account not known to us and which we cannot find, is covered by this $255.60. On page 106 he reduces charge for new typewriter $61.50 of this item, allowing $30.00 to stand. Bill of William Wheeler, trip to Washington $270.00 and expenses $108.46, eliminated on page 106 is not taken out on page 841, neither is bill of Forbes Lithographing Company for 1000 mortgage bonds, $55.00, which was eliminated on page 106, both these items being construction and not operating expenses, and so charged. Bill of Harry Galbraith, refunded water bill $1.62 eliminated on page 106 and not on page 841, it having been shown that this is a rebate and not expense account, and so shown. "Thomas Dodd" bill of $5.25 is eliminated on page 106 but

not on page 841, Mr. Nixon failing to specifically show any such bill in expense account. Item—January 4, 1902, for copy of briefs $14.50 is eliminated from expense account on page 107 by Mr. Nixon and also on page 841, although in his cross-examination on pages 725 and 726 he shows this was never in expense but in "Water Rates Litigation."

Mr. PICKLE: Counsel for City excepts to the method of this witness in testifying, he having reduced his evidence to the shape of an argument or brief in the case instead of simply contenting himself
3592 with stating plain facts.
Over-ruled.

Q. Mr. Kimball, when did the Knoxville Water Company begin to operate the plant of the Lonsdale Beaumont Water Company?

A. I don't quite understand your question.

Q. Receipts from the Lonsdale Beaumont Water Company appear on the books of the Water Company from, as I understand it, June 1st, 1899, to January 1st, 1900, and also expenses are charged on the books of the Water Company to the L. B. plant for that period. Now why was that done?

A. Sometime in May, 1899, Mr. Elbert Wheeler acquired control of the Lonsdale Beaumont Water Company, and at that time I was elected secretary of the company and the management of it given to me, although it was nominally managed from that date until about the 1st of October by its former Manager, H. W. Lynn, who however, reported to me and turned over all collections, and I reimbursed him for all bills paid on that account. About October the 1st, the management of that Company was taken directly into the office of the Knoxville Water Company, but its accounts were kept separate and by myself rather than by the regular book-keeper of the Knoxville Water Company, and from time to time in separate reports turned over to Mr. Elbert Wheeler, who was also Treasurer of the Lonsdale Beaumont Water Company at that time and this method of management continued until the consolidation of the two companies was brought about through purchase, and deed filed and recorded in the Registry of Deeds. After such consolidation, the Treasurer of the Lonsdale Beaumont Water Company, Mr. Elbert Wheeler turned into the treasury of the Knoxville Water Company,
all the receipts which had accrued from June 1st, the date
3593 that he assumed control of the company, so far as its income was concerned, giving them the benefit of this income and charging against this amount the expenses of operation to that date, in round numbers being something like $6000.00 income and $3900.00 perhaps, expenses, showing a substantial net gain to the Knoxville Water Company.

Q. You refer to June 1st; June 1st of what year?

A. 1899.

Q. Now who do I understand paid the expenses of the Lonsdale-Beaumont Water Company to June 1st, 1899, to Jan. 1st, 1900?

A. The actual payments, most of them for the first three or four months, were made by Mr. Lynn, so far as the Knoxville end was

concerned, with money furnished him by me from funds coming from the receipts from water rents of that company, which in the meantime had been paid me by Mr. Lynn. After October 1st, and until the financial affairs were consolidated with those of the Knoxville Water Company, the collections were made directly by me and bills paid in the same way so far as they related to Knoxville local Bills—other bills being paid by the Treasurer in Boston.

Q. In the estimate of fair construction cost made by Mr. William Wheeler and yourself as a basis of estimate, you have allowed one half the length of cast iron pipe as having been laid in macadamized streets and assumed that the remainder in length of the pipe laid was in unimproved streets. This estimate has been attacked by witnesses for the defendant, and I ask you to state fully the facts in regard to the amount of pipe laid in macadamized streets and in streets of other kinds with any information that you may have obtained since your first testimony?

A. Our original estimate was based upon my personal knowledge of the streets of Knoxville through having been over them and being quite familiar with them, especially in reference to laying water pipe of which between 1890 and 1901 I had probably laid under my personal charge fully one half that on March 31, 1901, was embraced in the pipe system of the company.

3594 I have however, within the past year and since I previously testified, made from actual observation and measurements a determination of the exact length of streets which were on the date of this inquiry macadamized as well as having brick paving laid over our pipe lines, and I find on Ma'ch 31, 1901, of a total of 362,160 feet of pipe then connected with our plant, 98,191 feet were in unimproved or dirt streets, 246,671 feet were in macadamized streets and 17,298 feet of pipe were in brick paved streets, and from my personal observation as to the streets that have been macadamized from 1891 up I am satisfied that the amounts contained in our estimates of fair invested cost, instead of being excessive, are conservative as to the amount existing when the pipe was actually laid.

Q. You state that over 17,000 feet of this pipe as laid on March 31,1901, was laid in brick paved streets. There appears to be no charge in the analysis of Mr. Wheeler and yourself as to fair construction cost. Was there in fact any pipe laid in the streets which were at the time such pipe was laid paved with brick?

A. There was none except one short line on Clinch St. between Gay and Prince, about 400 feet long, which was laid after the brick paving was put down, and this was left out of our estimate of fair construction cost through inadvertence, and being a comparatively small item was not thought of when the estimate was made up. The amount of pipe given above aggregating 17,298 feet is the amount that was laid in the streets and under brick paving as such brick paving existed March 31, 1901.

The further taking of this deposition was adjourned until Friday morning, January 22nd, 1904, at 9 o'clock A. M.

3595 FRIDAY MORNING, *January 22nd*, 1904—9 o'clock a. m.

Continuation of direct examination of F. C. KIMBALL by J. W. CALDWELL:

Q. Mr. Kimball, referring your answer to the time and about the time covered by the latter constructions in the plant of the Knoxville Water Company, I ask you to state the cost of macadam the requirements of the city in regard to replacing it, including the practice of the water company in replacement of macadam and sunken ditches, &c.?

A. Confining my answer to the period since I have been Superintendent, that is since January, 1899, we have never bought macadam during that period at less than 90 cents a yard delivered and have paid from that price to $1.15 and for some finer grades for use in concrete as high as $1.50 a yard, but a fair average, perhaps especially for that quality used on the streets we have paid delivered $1.00 a yard. We are obliged to replace macadam to the extent of at least 6 inches in depth, and as to what we actually do do on all macadamized streets, the old macadam is saved as far as possible, and as we are not allowed to round up our ditches to cover subsequent settlement, we place back the old macadam with originally two to four inches of new macadam over it, and then as the ditches sink, keep on replacing new macadam as long as they require it. All this replacement of macadam, as well as the original placing of it after working on a ditch is charged to the account that the work itself is charged to—that is the extension of a pipe line to construction, while in case of repairs to a pipe line, to repairs, and this same charging to the account to which the macadam is charged, is followed as long as that particular ditch requires attention.

Q. Why is it that the broken stone used in making concrete appears to cost more than ordinary macadam?

A. The ordinary stone used in making concrete does not,
3596 but in some of the facing work—that is the outside work—and the surfacing of floors, a finer grade is used and the crushers charge more for that than they do for the regular run of the crusher.

Q. Then is the average cost of the ordinary broken stone for concrete about the same as that of macadam?

A. About the same, yes, sir, averaging as I stated about $1.00 a yard.

Q. A voucher has been shown to several witnesses in this case of 65 cents a yard to the Evans Marble Mill for macadam and a charge by King of 35 cents a yard for hauling. Do those two prices make up the price of the concrete or is 65 cents the price of it?

A. It requires a combination of the two prices to make up the price delivered. The Evans Marble Mill Co., I think in all cases that we have obtained macadam from them, selling it on the yard, to which delivery has to be added.

Q. What was paid for the cement used in the building of the intake tower?

A. $2.90 per barrel as shown by the vouchers already exhibited.

Q. What did your concrete floors at the filter station and elsewhere cost you?

A. Wherever those floors have been laid by contract, they have cost $1.50 a square yard, and this perhaps embraces one-half of what has been done. The remainder has been done by the Knoxville Water Company by stock and labor account, and while no detailed cost of that particular work has been kept, it is my opinion that the cost does not vary materially from that paid the contractor where it was let at contract.

Q. What was the price or cost of the concrete for cinderlithic sidewalks?

A. The same as the contract price for cement floors, and
3597 in this connection I will state that all cinderlithic sidewalks replaced has been done by contract and at an expense $1.00 per yard.

Q. Mr. Brown on page "55" of his deposition allows 40 cents a yard for broken stone. Did you aver get broken stone for concrete at that price?

A. We never have, no sir. It might however be pertinent to state in this connection, to avoid any misunderstanding, that where we have done work at the River station, which included amongst the rest the excavating of rock, the water company, in their force account, has broken up that rock to what might be called suitable size for a man to handle, that is into pieces as large as your head or so, and then it is broken up into macadam by men who were paid 50 cents a yard for breaking; so that the cost of any macadam made in this way has not been $1.00 to the water company directly, but was 50 cents plus whatever the cost was of preparing and piling that rock and afterwards handling it, which amount is uncertain, but would probably add from 20 to 30 cents to that 50 cents price. This of course would, to that extent, modify my former statement as to it costing us from 90 cents to $1.15 a yard.

Q. Mr. Brown on page "67" of his deposition has made reference to marble sprawls and to the possibility of their being gotten free of haulage and cartage, being used to make concrete, and my recollection is he said would cost 35 cents a cubic yard delivered. He seems to have thought also that they could be obtained at quarries of such size as to require no breaking. Please state what you may know on this poin-?

A. When we were contemplating building the intake tower, knowing that a large quantity of broken stone would be used, I investigated this wuestion at two different quarries up the river, and while
I found that the quarries would be willing we should take any
3598 of their refuse without charge at our own expense of removal, I found that very little of this rock was of suitable size for concrete, ranging in masses of 2 or 3 cubic yards down to fine powder. To have obtained without breaking, sprawls of suitable size for concrete, would have required over-hauling their entire pile of rubbish or debris and probably not one yard in ten could have been obtained suitable for this work. The best price obtainable from these quarries

to break rock and deliver it was from $1.00 in one case to $1.25 per yard in another case.

Q. What has your sand been costing you?

A. All sand, that we have bought since I have had any connection with these works, when delivered by team in any part of the town, either at the pumping station or filter plant or around the streets has cost 70 and 75 cents with I think an exception in 1894 or 1895 for a short period when we paid 65 cents. During the work at the pumping station in 1894 and 1895, by furnishing a barge ourselves we obtained sand delivered alongside the works in barge loads at from 20 to 25 cents a cubic yard, having however to unload it and handle it into place.

Q. Did any considerable saving from the price of 75 cents a yard result from getting the sand delivered by barge?

A. It did for a small quantity of the work that took place immediately on the river bank, but both in the pumping station construction and in the intake tower construction, as the work rose above the river bank it required the handling of this sand up to the top of the bank and by wheel-barrows, and while I kept no detailed account of the cost, it is my opinion that little if any saving was effected in the upper portions of this work by this decreased price and taking it on the river bank.

Q. Mr. Brown on page "55" says he calculated the intake to be built of cement concrete of proportions 1, 3 and 6. What
3599 were the proportions of the ingredients of that concrete?

A. The proportions of the major part of the concrete was 1, of cement, 2½ of sand and 5 of stone; while the inner and outer faces were made entirely of a cement mortar composed of 1, of cement 2½ of sand without the admixture of stone. A mixture, if averaged for the whole tower, would have probably amounted to 1 of cement, 2½ of sand and perhaps 4 or 4½ of broken stone.

Q. Would you regard it as good engineering to build that intake tower in proportion of 1, 3 and 6?

A. The intake tower might have been built of those proportion- and might have stood, but the calculation made at the time were on the basis of the use of the mixtures in the proportions stated and gave only what we considered the proper factor of safety for a structure of this kind.

Q. Mr. Brown and Mr. Nixon have reduced your charges for pumpage for laying the intake pipe and building the intake tower allowing $30.00 for each job. Is that a correct allowance?

A. It certainly is not either compared with what actually was done and what my experience teaches me is necessary in work of this kind. Assuming, as does Mr. Brown, that in each case 60 days is necessary to avoid the water rising over green work, the pumpage has to go forward night and day all through the full 24 hours, and it requires one laborer at all times to see that the pump suction and pump hole or sump hole, as it is sometimes called, is kept free of dirt, gravel &c. washing in, and that no obstructions occur, and that the pump is continually at work when required. These men, working as they did 12 hours a day apiece, were paid on

this work $1.25 a day, which made for the two men $2.50 each day, or a total of $150.00 for 60 days' work, and this without any charge or allowance for steam, value of pump suction or other tools and materials required for this work.

3600 Q. Would it be safe to conduct the plant with only one boiler feed pump at the river station?

A. It would seem as though that question would answer itself as any slight derangement of that pump would throw the boilers out of service and unless the fires were quickly drawn, liable to cause disaster. As a matter of fact there are two feed pumps at the River station besides the jacket pump and an injector, all to guard against possible accidents to feed water supply to the boilers.

Q. I understand that on page "125" of his deposition Mr. Brown means to state that 167 of the gate and valve boxes given in his replacement valuation at 70 cents each, were ordinarily service boxes and would not be suitable for use in the streets. Where according to the plan adopted by Mr. Brown would these stop-cocks have to be placed?

A. I assume from his deposition that these smaller boxes are placed over stop-cocks on the wrought iron mains. These, like the gates on the cast iron pipes are within the street limits and not on sidewalks or otherwise protected from travel and require as heavy a box to sustain the shocks of passing teams as do the gate boxes over the larger valves on cast iron mains, and in this connection there could hardly be any difference in the weight of the boxes used.

Q. How much have you been paying for the restoration of brick pavements?

A. $1.50 per square yard whereever the contractor could have all of the old brick to use again—and additional price when new brick, to any considerable extent, had to be furnished.

Q. Going back for a moment to another subject—I wish to ask you about the high service. Has there been any change in the construction of any of the pipe lines in the city, understanding I do not refer to extensions, but changes to old lines since the 31st March, 1901?

3601 A. There have been no changes made except as you just refer to additional extensions made from time to time.

Q. What pressure is gotten from the high service?

A. That depends upon what portions of the town you have reference to. It is something like 45 pounds more than the low service and varies from 130 to 135 pounds in the lower parts of the city to 25 or 30 pounds in some of the higher parts.

Q. How much on Gay Street?

A. With the high service on, 90 pounds—with the stand-pipe full—meaning by Gay Street at the corner of Clinch, which is about the highest point in the street.

Q. Has that high pressure in recent times been turned on frequently or infrequently?

A. Since last May the high pressure has been turned on at the call of the fire department, probably at an average of 15 or 20 times a month.

Mr. PICKLE: I don't see what that has to do with it—that is since last May.

Mr. CALDWELL: It is only introduced for the purpose of showing that it stands the high pressure now as well as for March, 1901.

COMMISSIONER: The testimony is admitted and exception overruled.

Q. State any other fact on this subject you may wish to state about it?

A. In further explanation as to the 90 pound pressure on Gay Street when the stand-pipe is full, I will state that at no time to my knowledge, which is borne out by our records shown by our automatic pressure gauge, is the stand-pipe over 20 feet from being full, which 20 feet would make a difference of approximately 8½ pounds pressure; so that at no time when the high pressure has been turned on, so far as I am able to determine, is the pressure less than
3602 80 pounds and from that to 90 pounds at the point indicated on Gay Street. I will produce for inspection, but not for filing, the actual records.

Q. Mr. Kimball, when you were re-called by the defendant you testified on page "239" in answer to a question refer-ing to excavation &c., at the reservoir as to how much of that sort of an estimate goes to excavation and you said in effect that usually the excavation of a reservoir composed entirely of earth work would be about 40%, and the replacement of it, rolling, ramming, &c. would be about 60%. You further stated that this is based on simply the earth work itself. On page "24" of Mr. Nixon's direct examination a question asked him is the following: "Mr. Nixon, in the classification and fair construction cost of the physical plant submitted by Mr. William Wheeler in his deposition and ratified by Mr. Kimball they estimate the reservoir at $33,000.00 without details; Mr. Kimball states that about 40% or $13,200.00 of this is assignable to excavation." I ask you whether in this question Council for *for* city has rightly interpreted your meaning on page "239" above quoted, and if not, please explain your meaning, and if necessary illustrate it?

A. My answer that the excavating of a reservoir composed entirely of earth work would be about 40%, had reference simply and only to 40% of the cost of the earth work itself and not to 40% of the entire cost of the reservoir, including such concrete, brick or other material used in its construction, and this appears to me to be very plain in my answer where I qualified it by making it apply to a reservoir composed entirely of earth work and in the answer to the next question where I say "this is based on simply the earth work itself." As an illustration, assume that a reservoir, the cost of which complete is estimated at $30,000.00, the earth work, that is the excavation and placing in embankment &c. may cost in the total per-
haps $12,000.00 of the $30,000.00, my meaning applied to
3603 this case would be that 40% or $4,800.00 of the $12,000.00 would be the approximate cost of excavating the earth itself and that 60% of this $12,000.00, or $7,200.00 would be the approximate cost of placing it in embankment, rolling, ramming &c. and these percentages are not, in any way, to be applied to the total cost

of a reservoir including concrete, brick or other material used therein.

Q. Do I understand that the 40% and 60% estimates referred to are to be applied only to that cost represented in the handling of the earth work alone?

A. That is my meaning and understanding.

Q. Now Mr. Kimball, do the books of the company in any way show the amount of excavation done during the construction of the reservoir?

A. They do not in any particular.

Q. There are certain quantities of wrought iron pipe listed in your analysis; are those street *amins* or service pipes?

A. All the wrought iron pipes listed either in our analysis or in the pipe construction record book are street mains and are in no sense service pipes, meaning by this mains running longitudinally with the streets and not service pipes running from such mains crosswise into the houses or premises.

Q. I wish you would give me your opinion as an expert in water works in regard to the value of bids quoted in Trade papers?

A. Except as a matter of reference, I don't consider them of any especail value, and to illustrate this, it is undoubtedly easy to show from say the Engineering News items comparable with every item perhaps used in the construction of this plant and without doubt at prices ranging from one-third or one-half those shown in these deposition-, to prices of the same apparent construction amounting to two or three times the prices herein shown, and that without a full knowledge of the conditions under which such bids were ob-
3604 tained, as well as a knowledge of the circumstances, character of work &c., such bids at the most would only bear very little weight with me in any estimate that I was at work upon.

Q. Have you prepared a tabulated statement after the manner of the one which appears on page 816 of Mr. Nixon's deposition, as a summary of income and operating expenses of the Knoxville Water Company for the fiscal years 1899-1900, 1900-1901 and 1901-1902, and if so, please hand it to the stenographer to be copied in your deposition, and explain it briefly?

A. I have prepared such a statement, which is as follows:

"Summary Income and Operating Expenses Knoxville Water Co.

Made in same form as given by W. M. Nixon on page 816 of his deposition, but using *actual* instead of book collections and expenses, and also given for three years instead of for two, all as shown by Mr. Elbert Wheeler in his deposition, on page "2," for income and expense (see also page 5) for 1900–1901; on page 8 for income and expenses for 1901–1902, and on page 42 for income and expenses in these two and also 1899–1900, verified as shown by the books.

Year.....	1899–1900.	1900–'01.	1901–'02.	Totals.	Averages.
Book Balance Water Account.....	$84,483.31	$93,207.08	101,346.91	279,037.30	93012.43
Less Abatements.....	3,516.83	4,224.01	4,502.01	12,242.85	4080.95
	$80,966.48	$88,983.07	96,844.90	266,794.45	88931.48
Less Rebates.....	259.59	292.89	327.65	880.13	293.38
	$80,706.89	$88,690.18	96,517.25	265,914.32	88638.10
Less increase in uncollected ac's.....	2,168.66	208.79	1,065.13	3,442.58	1147.52
Actual cash collections per Treasurer's Deposition.....	78,538.23	$88,481.39	95,452.12	262,471.74	87490.58
Operating expenses per Treasurer's Deposition and verified by the books.....	31,545.25	$35,775.89	37,003.25	104,324.39	34774.80
Surplus (so-called) from which however interest charges have to be met..	46,992.98	$52,705.50	58,448.87	158,147.35	52715.78

3605 Q. You may explain the basis on which this table is prepared and the result of the comparison of the three years covered by it.

A. This table is based upon the Books of the company which agree with the deposition of the Treasurer on the pages mentioned therein, and shows the total operations of the company for these 3 years, one significant fact of which perhaps is that the average of the 3 years are very close to and vary only in their totals to an extremely small amount with the year 1900-1901 in question.

Q. Mr. Kimball, I hand you the paper introduced in the testimony of Mr. Gray in this case, being a letter from the United States Cast Iron Pipe and Foundry Company, dated "Philadelphia 1/31/1901" and directed to "Elbert Wheeler, Esq., Treas., Knoxville (Tenn.) Water Co. 14 Beacon Street, Boston, Mass." I wish you would say where that paper came from and how it came in the possession of the water company?

A. That came into my individual possession from the Treasurer, who sent it to me from Boston.

Q. Is it the property of the Knoxville Water Company?

A. It is, and before it was sent to me, I think when I was in

Boston last October, I saw it in the letter files of the Knoxville Water Company in the Treasurer's office in Boston.

Q. Was there a contract or arrangement for pipe purchased between the Knoxville Water Company and the United States Cast Iron Pipe and Foundry Company for the supply of pipe to the Knoxville Water Company?

A. There was, and we bought pipe in considerable quantities hereunder.

Q. Did that contract cover the date March 31, 1901?

A. It did.

Mr. PICKLE: Did you make that contract?

A. I did not make the contract.

Mr. PICKLE: This contract to which you refer is the one about which Mr. Gray testified as having been made between the
3606 Philadelphia — of the Pipe Company and the Boston office of the water company, isn't it?

A. It is, yes sir.

Q. Do you know whether it was a written contract or not?

A. I do not any further than this shows and advices of the Treasurer.

Mr. PICKLE: We except to the testimony of the witness as to that contract as being purely hear-say.

Sustained.

Q. During the period extending from January 31, 1901 say to May 1st, 1901, did you purchase pipe from the United States Cast Iron Pipe and Foundry Company?

A. We did.

Q. What prices did you pay them?

A. We paid them the prices as shown on the several invoices between those dates which are in accordance with letter identified by and in Mr. Gray's deposition.

Q. Now Mr. Kimball, you have called my attention to a double use of some brick that you have made in your statement in this case which in the interest of entire fairness you desire to correct; I will ask you to state what that was?

A. In making up the analysis of the fair construction cost of this plant with Mr. William Wheeler when it was first done, through an oversight I included in the filter plant and around the settling basis a quantity of 46,000 vitrified brick twice at $25.00 a thousand amounting to $1,150.00 or with the 20% added of $230.00 additional, $1,380.00. This mistake, while not excusable, occurred from the fact that the settling basis was built on or about March, April or May, 1894, and as we were dividing that analysis by fiscal years,
3607 it was calculated in the fiscal year 1893-1894 and then when we took up the construction for 1894-1895 the fact that it had already been included was overlooked and it was recalculated, making a double calculation of this amount, and this should be in all fairness, deducted from any records or analyses in which it occurs.

Q. Now have you had time to make up the statement that was called for in regard to the old 10th Ward hydrants?

A. I have not yet, but I will try and furnish that this afternoon.

Cross-examination by G. W. PICKLE:

Q. Mr. Kimball, you have been in constant attendance upon the examination of all the witnesses, both for the City and the Water Company that have been taken since your former examination in this case, have you not?

A. No sir I have not. I wasn't admitted to the hearings during any of the examination of our witnesses in chief, or of cross, nor to the examination of the witnesses of the City until Mr. Getaz went on the stand, and at some point during his examination.

Q. Well you have been present at the examination of Mr. W. M. Nixon and Mr. Charles S. Brown for the City, and at least a part of the examination of Mr. Getaz, and all of the examination of Mr. Munding and the examination of Lawson Irwin and Mr. Hood on behalf of the City, hav-n't you?

A. That is a fact.

Q. And also during the examination of Mr. Wingfield and Mr. Ludlow; I mean their last examination the other day, and of Mr. William Wheeler?

A. I have been present during the examination of all the Water Company's witneses in rebuttal.

Q. Now after Mr. Nixon had testified in chief you went to Boston and went over his deposition with Mr. Wheeler, didn't you?

3608 A. I was in Boston for about a month after Mr. Nixon testified, and was in more or less consultation with Mr. Wheeler during that time.

Q. Did you not make up, in the main, if not all, a list of the questions upon which Mr. Nixon was cross examined and furnish them to Counsel who read from the same on cross examination?

A. I made them up in connection with Counsel. I do not think it is fair to state that I made them up and he read from them for he certainly did not follow them wholly.

Q. Well you furnished a type-written copy to him?

A. I worked out the larger part of the details of them from their general requirements as to what was necessary.

Q. All you mean to say, when you say he departed from them, is that he threw aside occasionally a few of the pages that he didn't ask?

A. That is not what I intended to say.

Q. Well that is fact that he did throw aside a few pages, didn't he?

A. He left out some things that had been prepared in connection with himself or themselves, and inserted others which were not prepared to the extent of being written out in detail.

Q. Well you made up, or you and Mr. William Wheeler made up a statement in advance of Mr. Wingfield and Mr. Ludlow's coming here, furnishing them the items upon which they were to make up their estimate with the prices placed opposite them, didn't you?

A. Mr. Wheeler did not. I prepared a statement showing both the replacement value of Messrs. Nixon and Brown, and in parallel columns the same items as they appeared upon the fair construction cost of Mr. William Wheeler's estimate, and submitted these to the two gentlemen you mentioned for their guidance, with instructions

to look them over, and where quantities did not agree between the two accounts, to satisfy themselves which was correct, and having satisfied themselves as to quantities, to determine and affix
3609 their own prices to such quantities in the making up of a replacement value of their own.

Q. You showed the water company's prices opposite each column, didn't you?

A. I did, and I showed Mr. Brown and Mr. Nixon's prices opposite each item.

COMMISSIONER: All the prices you showed were already in the record?

A. They were, and there was nothing shown, so far as I recall except what was in the record.

Q. Well in the main, except as to cast iron, they agreed with your prices with which you and Mr. Wheeler had made your estimate of fair construction cost?

A. I cannot say as to that because I have not compared their replacement estimates either with the statement I furnished them or with anything else in the record.

Q. Well now you prepared and furnished Counsel a typewritten list of questions to be asked yourself on this examination, haven't you?

A. I assisted Counsel in going over the record and seeing what was necessary to be put into this case of Rebuttal Testimony both for myself and other witnesses. As preparing a positive statement which he used, that is not a fact.

Q. I will ask you if he has not read the questions in the main from a typewritten statement which you furnished him from which you were to be examined?

A. The typewritten statement which you refer to was prepared very largely by Mr. Caldwell and myself.

Q. Was it dictated by Mr. Caldwell or by you?

A. It was written out in pencil, probably one-third or one-half of it by Mr. Caldwell and typewritten in this office.

3610 Q. Who furnished the other of it?

A. I furnished some of it and the other was furnished by Mr. Caldwell and myself in conjunction, as well as in conjunction with other counsel of the water company.

Q. Mr. Kimball, you state that you have examined the old books of this water company pretty carefully since your former examination; have you had an opportunity, or have you in fact examined the Books of Wheeler and Parks in reference to the construction?

A. No sir I have not.

Q. Now Mr. Kimball, have you changed your notion about these old Books since you were on the stand before?

A. Well as I don't recall my notions as to these Books before I cannot properly answer that question.

Q. Well didn't you state when you were on the stand before that these Books had been kept in such a way that no results could be obtained from them that were at all reliable?

A. I don't recall what my testimony was along those lines, but

with some verbal changes which might change the meaning somewhat it may be something like that.

Q. Well is that your opinion of them still?

A. I think I testified yesterday that so far as division between operating accounts and construction accounts are concerned they had not been kept with that in view.

Q. These books, in the method of their keeping, afford a rare opportunity for a shrewd and partisan book-keeper to show any result almost that he wants, do they not?

A. I think that is a fact, and I think that has been thoroughly demonstrated in this case.

Q. I will ask you if you concur in the opinion of Mr. William Wheeler expressed in his examination in chief, that the Books of a company can be made to show anything that the owner of the books desire to have them show by a shrewd book-keeper?

3611 Mr. CALDWELL: We object to the question as it is somewhat irrelevant in this case.

Sustained.

Q. Mr. Kimball, I will ask you at this point to state in what manner as to the payment for the same by the consumer, the meters were placed in this plant for the year 1900-1901 and 1901-1902?

A. I doubt if I can confine myself to those dates, but I can make a general statement which I think will answer your question, which is this: At the time I assumed charge of this plant, the water company was not setting meters of their own volition upon private premises, but as we interpreted the provisions of the contract with the city, the consumer had a right to a meter if he would be at the expense of the meter and setting, and as a consequence thereof, when any private consumer desired a meter and paid the expense of it, it was set, but all meters set by the water company and at their option, which at that time did not include private consumers, but did include manufacturers, hotels and other classes of larger consumers, the water company, paid the expense and charged a meter rental. Later, without still confining myself to the dates, when the water company decided to meter certain classes of private premises or domestic consumers, those meters were set by and at the expense of the water company entirely, and a rental charged therefor.

Q. Now on the 31st, March, 1901, there seems to have been 275 meters in this plant. What I want to know Mr. Kimball with reference to those meters is whether they were put in at the expense of consumers or at the expense of the plant, and if they were not all put in at the expense of consumers, how many were, and how many were put in the other way; that is what I want to get at?

A. In the fair construction cost of this plant as analyzed and given by Mr. William Wheeler and myself, are not included any meters which belong, or were paid for by private consumers, and are only included those which were set by and at the expense of the

3612 water company.

Q. Well there were 275 meters only in this plant on the 31st March, 1901?

A. Whatever the number was; I don't recall it now; it was either 275 or 276 I believe.

Q. I am not enquiring about the number you put into your estimate but the whole number in the plant?

A. That is the way I understand it.

Q. Now how many of the 275 were put in at the expense of the consumer and how many were put in at the expense of the water company?

A. None of the 275 were put in at the expense of the consumer; they were only those that were set at the expense of the water company.

Q. Now I will ask you to look at your Books and see if 275 were in this plant on March 31, 1901?

A. On March 31, 1901 there were 275 meters of various sizes connected with the plant of this company that had been set by and at the expense of the water company, and in addition to these were numerous meters, the number of which I do not know at the present time, belonging to private consumers, and which at no place have appeared in any estimate which we have furnished of meters connected with this plant.

Q. Why were the meters put in by consumers left out?

A. For the reason that we believed they belonged to consumers and that we had no interest in them proprietary or otherwise.

Q. Those were attached to the services that supplied private consumers, manufacturers and other companies, were they; I mean those that were paid for by the consumers?

A. They were almost invariably attached to private residences.

Q. Is meter rental embraced in your income account as well as the water collection?

A. It is.

3613 Q. Under the head of "operating expenses" for the year 1900-1901 and sub-head "Insurance" there is an item of $30.00 to Mr. Parks as surety, and a like item to Mr. William Wheeler as surety. Now what kind of surety had Mr. Wheeler and Mr. Parks become, and for whom?

A. They were surety on the bond of Elbert Wheeler, Treasurer, executed in the sum of $10,000.00 being the usual indemnity bond which fiscal officers are accustomed to give.

Q. And they were paid $30.00 each as compensation for signing and becoming surety on Elbert Wheeler's bond as Treasurer?

A. They were.

Q. Are these gentlemen engaged in the business of a surety Company?

A. They are not.

Q. I notice a like item under the sub-head of "Insurance" in operating expenses of 1901-1902. That is explained in the same way isn't it Mr. Kimball?

A. Yes sir.

Q. Mr. William Wheeler is a brother of Mr. Elbert Wheeler the Treasurer of the company and the President of the company in 1900-1901 and 1901-1902, is he not?

A. That is my understanding.

Q. Wheeler and Parks during the existence of that firm, and William Wheeler, after its dissolution, were likewise supervising engineers of the company, were they not?

A. That is correct.

Q. Now the Wheelers are largely interested together not only in the management of the Knoxville Water Company but other water companies, are they not?

A. They are interested in the management of various corporations, water companies and others, independently and they have interests both of them in some of the same corporations, but not what might be termed a joint interest.

3614 Q. Now Mr. Kimball, under the sub-head of "Taxes" for the year 1900-1901, I wish you would get the voucher for the item of $20.28.

(Witness produces same.)

Q. Now Mr. Kimball, isn't this the tax of $20.28 on what is known as the "Tillery tract" situated outside the city, and doesn't the voucher distinctly state on its fact "on ten acres of land" and is there any other tract that answers that description except the "Tillery tract"?

A. That does not answer the description of the Tillery tract, which has 14 acres, more or less. It is the only tax bill for property in the 12th District, and what it covers, possibly the Assessor knows but I do not, except that being the only tax bill for property in the 12th District, I assume it covers all of our property there, except such as is covered by the general tax levy.

Q. Now I will ask you if your plant isn't assessed as a whole all of its property without a description of the real estate in the general asses-ment—all the useful part of the plant?

A. It is assessed as a plant as a whole, with real estate additional and the real estate is assessed in the several Wards and Districts that it happens to be located in.

Q. At any rate this bill purports to be in payment of a tax on a specific tract of land of 10 acres, does it not?

A. Well it reads "State, County and Road taxes for the year 1900 on 10 acres" and in the margin, under the heading "District" are the figures "12" and under the heading Taxes $20.28, and I am free to say that that is all I know about it.

Q. Well now have you any tract of land approximating 10 acres in the 12th District except the Tillery tract?

A. The Tillery tract is the only tract of 10 acres, but we have two other tracts of land in that District.

3615 Q. Well what are they?

A. It is the old L.-B. pumping station lot and the stand-pipe lot.

Q. Now all of that had gone out of use as a part of your plant except the stand-pipe lot in 1901, hadn't it?

A. In 1901, yes sir.

Q. The Tillery tract was not in use as a part of the plant for supplying water at all in that year, was it?

A. The Tillery tract was not in use for supplying water at all, but it has been in use for the purposes of receiving a rental which has been turned into this company and appears as an off-set to the expense account, reducing the expense account to the amount of the rental received.

Q. What rental do you get on it?

A. I believe last year $8.50 for the year, and my recollection is that that is the rental which has been paid every year since we have had control of that property.

Q. Well Mr. Kimball, the fuel account for the year 1900-1901 as shown by Mr. Elbert Wheeler is $5,431.15. That seems to be about $2,000.00 or more in excess of the preceeding or following year. What was the matter with the fuel account that year that made it so abnormal?

A. The Treasurer has fully set that out in his deposition and the best way I can answer that is to turn to his deposition and read it for you.

Q. No I would rather have your reason?

A. There are two or three reasons; one, and the principal reason perhaps, was the high price paid for coal during that year—if I have the years correctly—and which price was higher I think than at any time during my knowledge of Knoxville and its conditions.

Another fact was the running of the Lonsdale pumping sta-
3616 tion plant for a portion of the year, necessitating fuel charges at that place, in addition to those at the River Station and the Filter plant; while a third reason, as compared with the following years, was the fact that the pumping machinery used in that year was not as economical in coal consumption as that in later years. In general, those would be my reasons.

Q. I believe it was in this year 1900-1901 that you had the stand-pipe painted at the expense of $829.53 as you stated?

A. We had it painted that year and finished the following year at an additional expense of $180.00 odd dollars, I think; I wouldn't say positively.

Q. This item of $829.53 and the item of like purposes in the following year of $134.33 make up the cost of painting the stand-pipe, do they not?

A. That makes up the cost of scraping, cleaning and painting the stand-pipe.

Q. How long has that stand-pipe been in use Mr. Kimball?

A. Since about March 1894.

Q. And this painting was done in the year 1901-1902?

A. This painting was done in 1900-1901 and 1901-1902; it covered a period of something over a year in the entire work.

Q. Mr. Kimball, you have in the year 1901-1902 a sub-head for Water Litigation expenses. I do not see that you have any such head in the year 1900-1901. I wish you would separate from the other accounts in which they have been carried the expenses that

pertain to the litigations or litigation between the city and the water company that were paid during that year of 1900-1901?

Mr. CALDWELL: We object to that as irrelevant and immaterial. Over-ruled.

A. Understanding that this ordinance which is being litigated passed on March 31, 1901, I don't see how there could be any expense of litigating it prior to that date, and so far as I know, no bills pertaining to any other water rates litigation or the
3617 ordinances which were passed prior to that date and held invalid by the Court, were paid by us before March 31, 1901.

Q. Well how about attorn*ies*' fees in that litigation, referring now to the litigation between the city and your company with reference to these ordinances undertaking to regulate the rates of the company?

A. No attornies' fees were paid in connection with those prior ordinances, the work all being handled at that time by our regular attorney, who had presented no bill up to March 31, 1901 for special services connected therewith, if in fact he has at all.

Q. Well what about the expenses of any trip that you or Counsel may have made to Boston in regard to that matter?

A. I don't recall any trips made by Counsel or myself to Boston prior to March 31, 1901 on account of Water Rates Litigation and in fact, so far as I am concerned, from the time I came down here in January 1899, I did not visit Boston until in June, 1901, if I am correct as to my dates, which I think I am.

Q. Mr. Kimball, you state that you paid no attornies' fees during this year on account of litigation between the city and the water company?

A. I don't recall any except of course our regular salaried attorney.

Q. Well in addition to the payment made to your regular salaried attorney of his salary and charged in the Salary Account of this year, there is expense account of Mr. Charles T. Cates of $300.00 which Mr. Nixon eliminated; what was that for?

A. I have not the slightest idea.

Q. Will you get the voucher and ascertain?

A. There is no voucher for that sir, in the list, nor does the Treasurer's book give any voucher number for it.

Q. That is in addition to the amount of his regular salary which is found in Salary Account of this year?

A. Unquestionably this is an expense of some kind for
3618 which he drew a draft on the Treasurer.

Q. You cannot give any idea what it was for?

A. Not the slightest; I never heard the matter discussed nor broached and know nothing more than just what the books show.

Q. Did your company have any other litigation except its litigation with the city during that time?

A. During what time sir?

Q. During 1901, or preceding that, that required the payment to your attorney of anything in addition to his regular salary?

A. I cannot state as to that; nothing that I recall certainly. We have had more or less litigation ever since I have been connected with the company, of one kind or another, but I would not state that there was any that required special compensation to our Counsel, nor would I state there wasn't. As a rule, matters of that kind were settled direct between Counsel and the Treasurer without passing through my hands.

Q. So there is no voucher and no explanation on the books of this item of $300.00?

A. Nothing except expense generally to C. T. Cates, draft being for legal expenses, $300.00.

Q. Well now didn't you pay during this year expenses on this Knoxville suit you had with the city over the 10th Ward hydrants?

A. We did, yes sir, some twenty odd dollars; it came within the limits of this fiscal year, although I believe the suit was a year or two or three years prior.

Q. I am asking about the payments?

A. The payment came within the limits of this fiscal year although the suit was 1, 2 or 3 years prior.

Q. You say you were not at Boston the year ending March 31, 1901?

A. That is a fact, as I now recall; my first visit to Boston after coming down here as Superintendent, being in the year 1901.

3619

Q. I notice that you mention, as does Mr. Nixon an item of $8.00 for a copy of certain papers, Mr. Nixon erroneously stating that it was Mr. Caldwell's report in the Chattanooga case. What did you say that $8.00 and some cents was for?

A. As the vouchers show for copies of contracts between the city of Knoxville and the Knoxville Water Company.

Q. What were they gotten for; for what purpose?

A. For use in our office.

Q. Weren't they for use in litigation then pending and didn't you already have copies in your office for office use and at Boston?

A. It is hard work to draw the line between use in our office and use in litigation. The copies were necessary to furnish us information and that information may or may not have been wanting in present, past or future litigation, but as for saying positively that they were obtained for that express purpose, I cannot.

Q. Well can you say they were not obtained for that purpose?

A. I think my former answer covers that question.

Q. Well what particular copies were they?

A. The voucher shows.

Q. Well let's have the voucher.

A. Voucher No. 374 reads "The Knoxville Water Company to C. C. Nelson, Recorder, Dr. amount paid typewriter for copying ordinances, water works contract, North Knoxville, West K. and City of Knoxville $8.00" being dated at Knoxville, August 1st, 1900 and signed C. C. Nelson, Recorder.

Q. Now where are those copies?

A. I couldn't tell you.

Q. They are not in this office, are they?

A. I haven't them; my opinion is that they were sent into Boston, but I would not swear positively as to that.

Q. Haven't you copies of all those things in this office?

A. I have copies, yes sir.

3620 Q. They were not needed for this office except for litigation, were they?

A. My recollection is that from these copies I had copies made for this office.

Q. Now Mr. Kimball, you state that certain amounts paid to the newspapers here were paid for advertising; what was the water company advertising for?

A. Well that is pretty hard to state. The water company, except when they made changes in their rules or on account of some particular question necessary to call to the public's mind, seldom advertised. These advertisements were cuts, as I recollect, of portions of our plant, with a general invitation therein to the citizens and the public generally to visit our plant during the season of the Carnival, and were put in in response to a request of the newspapers to advertise with them in this particular edition, which we responded to.

Q. You have no competition in the business of furnishing water here, have you?

Mr. CALDWELL: It is so admitted in the record and has been proven half dozen times.

Sustained.

Q. Well Mr. Kimball, what is the method by which customers contract with your office here for water; do you use agents to solicit consumers and take contracts, or do you simply let them come to the office and solicit the service?

Mr. CALDWELL: We object to the question as irrelevant.

COMMISSIONER: Let him answer.

A. There are various ways of obtaining business in a water company that is pursued with this company. All contracts finally are made at this office, and anybody desiring water can, at any time without solicitation, come to this office and make application

3621 and obtain water; at the same time there is a great deal of work done, and has been personally — by myself, more particularly amongst manufacturers and other prospective large users to induce them to patronize us; if that is what you mean by solicitation by agents or others, it has been done.

Q. I will ask you if nine out of every ten water consumers don't come to your office and enter into a contract with you without any solicitation of the water company?

A. If nine out of ten or any greater proportion by that you mean come here and make application for water without asking explanations or requiring some one connected with the company to visit their place and observe the conditions, and state terms upon which it will be furnished, I would say no.

Q. Well then whatever is done in that way is done by a paid or salaried officer of the company, and is made a charge upon the water rates for that particular year, isn't it?

A. It is done by salaried employees of the company unquestionably, and charged into salary or appropriate account, but at the same time were the conditions as you mention in your former question that nothing is done in the way of solicitation, salary account might be reduced by one man.

Q. Mr. Kimball, in the operating expenses of 1901-1902 under the sub-head of expense, there is an item of $148.30 which seems to be on account of your expenses to Boston and other points. What time in the year was that visit to Boston made?

A. I think it was the trip we have just been referring to in June, 1901.

Q. How long did you remain at Boston?

A. My recollection is that I was away from Knoxville about ten days, of which possibly two, three or four days, I wouldn't say definitely were in Boston—not over four at the outside I should think.

Q. Well what was the object of your visit to Boston, Mr.
3622 Kimball?

A. My visit to Boston was after we had practically decided to install a large number of meters here on certain classes of services, and it was to familiarize myself with the best methods in use for handling meters, meter accounts &c. in large numbers. That I will say was the principal reason for that trip, although there were other matters of business connected with it, of course which always turn up in a case of that kind, and to accomplish that purpose I visited Providence, R. I. where they have some 19,000 meters in operation, also at Nashville.

Q. Well what other business did you transact at Boston; anything with reference to this litigation?

A. This litigation was talked over, and while I was in Boston I know we visited Mr. Wheeler's Boston attorney and discussed the matter with him.

Q. Who went with you on that occasion, anybody?

A. Mr. Charles T. Cates, Jr.

Q. Well what was his object in making the trip?

A. I assume his object was—in fact I might say I know his object was in ascertaining the wishes of our people in regard to matters in litigation, and to go over points with them in connection therewith.

Q. Was this item wholly your expenses, or yours and his?

A. That $148.00 as I recall, was wholly mine, as to which I think the voucher will show.

Q. How much was the expense of Mr. Cates?

A. I don't recall.

Q. And his sole business was in reference to pending or prospective litigation between the city and your company with reference to these water rates?

A. I should not put it that way. His business was to consult with our people as regards the affairs of the company, including litigation; it may have been solely for that or partially for other purposes;

that matter was discussed however. It was simply a question
3623 of whether he went up there or whether our people came down here.

Q. That was one of the inconveniences of having two offices, one at Boston and one here?

A. There is no condition of affairs, however ideal they may be, but what has some inconveniences, and this might be classed as one of the inconveniences in this particular situation.

Q. Mr. Kimball, you think that the Worthington vacuum pumps charged in repairs account for the year 1901-1902 at $176.00 and $124.00, and brass lined boiler feed pump at $122.00 are proper amounts to go into repair account and operating expenses?

A. Well that may be a question of opinion. I audited those bills and audited them to repairs account and the Treasurer in his distribution on the books, followed my auditing.

The further taking of this deposition was adjourned until 3 o'clock P. M.

3624 FRIDAY, *January* 22, 1904—3 o'clock p. m.

Continuation of cross-examination of F. C. KIMBALL by Mr. PICKLE:

Q. Mr. Kimball, I will ask you whether or not in a deposition that you gave on behalf of the water company on the 8th day of May, 1901 in the case of the Knoxville Water Company *versus* Mayor and Aldermen of the City of Knoxville, pending in the Chancery Court of Knox County for the recovery of rental on 16 hydrants in the old 10th Ward, you were asked with reference to the price of pipe and answered as follows: "Q. About what is it worth now? A. It is worth between $22.00 and $23.00." Did you answer that question in that way in your sworn testimony in that case?

A. I cannot recall, but if you have a copy of my sworn testimony in that case and it so states, undoubtedly such are the facts.

Q. I hand you the original deposition and will ask you if the question and answer I have quoted don't appear on page "11" about the middle of that deposition?

A. Such appear to be the facts and undoubtedly I so stated.

Q. And on the same page do you not state that you are speaking of the price of pipe f. o. b. Knoxville?

A. That undoubtedly is so as that is the only way that I have ever priced pipe at Knoxville, to my recollection.

Q. On page "27" and "28" of your deposition above referred to, were you not asked and answered as follows: "Q. What was the price and cost per ton in 1894? A. Varied from $18.30 to $20.90." Did you not so answer with reference to the cost of pipe at Knoxville, f. o. b. in 1894?

A. That is my answer yes sir.

Q. Now you and Mr. Wheeler in your estimates of fair construction cost have estimated pipe for 1894 at $25.00 per ton, haven't you?

A. On page "40" of Mr. William Wheeler's deposition
3625 wherein is set out the additions made during the year ending March 31, 1894 the price of pipe is given at $25.00, but on page "47" it shows the pipe laid as of the year ending March 31, 1895, which covers the larger portion of 1894, the price set out is $20.00 per ton.

Q. Well did you not state with reference to the price of pipe in 1895 that it was $19.60 for all sizes purchased, in the same deposition referred to above?

A. That appears to be the record and I have no doubt that I so stated.

Q. And did not the pipe purchased and estimated by your company during the years 1894-1895 that you have referred to include 3 and 4 inch as well as the other sizes of pipe?

A. I cannot state sir whether pipe laid of those sizes that year, there was any purchased or not; I am in doubt. There is however pipe of those sizes laid and it is included at $20.00 per ton in our analysis of the fair invested cost of this plant. My recollection as to that point however is that in 1895 while we laid some 3 inch and some 4 inch pipe, none was purchased.

Q. Well in the same deposition have you not fixed the price of pipe in 1897 at from $16.00 to $19.60?

A. I should say yes, from that deposition.

Q. Mr. Kimball, I see that you have made up a summary of income and operating expense that you intend as a parallel to Mr. Nixon's statement in which you deduct the increase in uncollected accounts in order to ascertain the actual cash collections as per the Treasurer's deposition and that for the year 1900-1901 you deduct on this acount $208.79 and for the year 1901-1902 $1065.13. Now as I understand you, you base these deductions upon the fact that there were at the end of the year 1900-1901, $208.79 more of uncollected accounts than at the beginning, and that at the end of the year 1901-1902 there were $1065.13 more uncollected accounts than at the beginning of that year; am I right in that assumption?

3626 A. In making up this table from the book account was subtracted the difference between the beginning of the year and the close of the year in uncollected accounts, so that this would show, as stated in the actual cash collections regardless of accounts standing on the books at the beginning and end of the year—The actual cash received into the company.

COMMISSIONER: Then you have got some previous and some that you earned that year that you didn't get until the next year?

A. That is it exactly—showing exactly the cash that may have been on the books before or after.

Q. Now there were however, as assumed in my former question, the sum of $208.79 more of uncollected accounts at the end of the year 1900-1901 than at the beginning, was there not?

A. That is so, yes sir.

Q. And the same is true to the amount of $1065.13 for the year 1901-1902?

A. That also is correct.

Q. You were simply ascertaining the actual water collections when you were deducting these amounts?

A. The actual cash collected for water, which as testified this morning includes meter rental also which has come into the treasury of the company in money regardless of any accounts.

Q. But the actual earnings of the plant would be $208.79 more for the year 1900-1901 and $1065.13 for the year 1901-1902 than the actual collections, would they not Mr. Kimball?

A. That would be so if all of those uncollected accounts were, and later turned out to be good, except this; those uncollected accounts carried forward are what I might term to be the gross amounts of the water bills before abatements or rebates are deducted,

3627 and our experience has been that a greater or lesser amount of those uncollected accounts sooner or later have to be abated; so that it is not safe to say that the actual earnings of the plant to be at any time realized upon in actual cash is represented by the addition of those uncollected accounts to the actual cash collected.

Q. But Mr. Kimball, the meter rents for the month of March, 1901 is carried forward into the next year, isn't it?

A. Yes sir.

Q. And meter rents at the end of the year 1902 are carried out into the next year, aren't they?

A. That is a fact.

Q. Now there was very little difference in meter rents at the end of the year 1900-1901 wasn't there?

A. That is also true.

Q. But there was about 1000 more meters at the end of the year 1901-1902 than there were at the beginning, weren't there?

A. There were quite a number, yes sir.

Q. About a thousand, wasn't there?

A. Well call it so, in that vicinity.

Q. Well the meter collections are among the best assets that the company has, aren't they?

A. You will have to define that term, among the "best assets." I don't quite catch it.

Q. Well those are usually paid and they are not carried over because it is not convenient to carry them over to the next year?

A. That is largely so, but as before stated even as regards those meter bills that are carried over, they are carried over at the gross amount and are subject to the percentage reduction for prompt payment, so that the total does not represent actual cash to be received.

Q. But subject to consideration of that sort, it does represent the excess of actual earnings over the actual receipts from water

3628 collections?

A. The total amount as there given does not, but the statement as to such portion of it as applies to meter bills subject to discount for prompt payment does apply.

Q. Now Mr. Kimball, I will take the year 1900-1901 in which you give as the Book balance water account $93,207.08 and ask you

to state how that amount is made up. It is spoken of as a balance here and I want to get at the effect of that word?

A. That is the balance shown on the Treasurer's Book of accounts after adding in all water bills collected, making allowance for all credits to that account, where there are any and also for the uncollected bills at the beginning and at the end of the year, producing that balance which we have termed "Book balance" to distinguish it from actual cash received.

Q. Well now let me see if I am mistaken about the items that make it up. I assume that it is made up of the following general items:

Receipts from hydrants	$11,455.00
Meter rates	32,815.60
" rents	760.55
Fixture receipts	55,952.82
Accounts carried over to next year	7,853.92
Making in all	$100,983.97
From which is deducted	7,645.13
Accounts carried into this year from the preceding year and amounts refunded	131.76
leaving after deducting these amounts	$93,207.08

Am I correct in the analysis?

A. So far as you state that a portion of that is for hydrant rental, I think you are correct; so far as you state certain divisions for meter rental, meter bills and fixture rates, I am unable to state as I have made no separation nor does the Treasurer's books show such
3629 separation but the amount of bills carried forward, both at the beginning and end of the year and the refunds which you state are correct, and the totals of the accounts and the balance of the book account as stated by you, is correct.

Q. Well let me give it to you in a little different form and perhaps you will find it on the books and be able to verify it without difficulty. The receipts for the same year are given as follows:

For the quarter ending July 1st	$22,963.71
" " " " Oct. 1st	22,650.58
" " " " Dec. 31st	23,497.16
" " " " Mar. 31st. 1901	24,018.60
and then for accounts carried out at the end of this year into the succeeding year are	7,853.92
making	100,983.97
Now deducting from that amount of accounts carried into this year from preceding year of	7,645.13
and amounts refunded	131.76
leaves a balance of	$93,207.08

which you have taken as the basis *or* of your book balance for this year, does it not?

A. Your last statement is in exact accord with the Treasurer's books, yes sir.

Q. The same method was pursued in making up your account for the succeeding year of 1901-1902 as for the year we have just been enquiring about in these particulars?

A. The same method as you last mentioned was followed in making up all of those years shown on my table.

Q. Now for the year 1901-1902 the amount carried out at the end of the year for uncollected accounts was $8,919.05, was it not?

A. Yes sir.

3630 Q. And the amount brought in at the beginning of that year was $7,853.92, was it not?

A. Yes, sir.

Q. Leaving a difference of $1065.13.

—. ——.

Q. Mr. Kimball, what period was covered by the Loweree administration and books and what by the Martine administration and books, and of course I expect you to get the information from the books of the company?

A. The Loweree and the Martine books seem to have dove-tailed into each other. The first entry in the Loweree cash book appears to be dated July 27, 1882, and the last entry January 31, 1884.

Q. Now see how it is with the Journal.

A. In the Journal the first entry is later than in the cash book while the last entry appears to be dated June 30, 1884. In the Martine books the first item in the Cash book is dated June 22, 1883, while the Journal does not commence until Oct. 5th, 1883. The last entry in the Journal is Dec. 31, 1891, as it likewise is in the Cash book.

Q. Well now about where or at what date is the separation line between these two administration-, as shown by the books?

A. The books do not appear to show a definite separating line, and it would appear as though construction up to some time in Jan., 1884, had been kept in the so-called Loweree books and operation possibly in the Martine books for such time as they precede the Loweree books. The items in the Loweree Journal subsequent to January, 1883, appears to be largely closing items rather than new transactions.

Q. Now in your estimates of fair construction cost up to what date did you bring the original construction?

A. Do you now refer to the analysis made by Mr. Wheeler and myself of fair construction cost.

Q. Yes.

3631 A. The first, or rather the earliest point at which we divided construction is of December 31st, 1891.

Q. Didn't you make your first rest as of January, 1884?

A. I think not.

Q. Well will you look at the estimate and see?

A. I am looking at page "23" of the joint analysis where it commences, and under the character "I" it states as the beginning of the analysis at the time of purchase by Wheeler & Parks, December, 1890, with the additions made during 1891, and then after setting out in detail various items on page "36" this "that disposes of all of the plant that had been constructed up to the time of the purchase by Wheeler & Parks in December, 1890, with the additions made during 1891."

Q. Well, on page "32" under the head of "Distribution pipes" what does original construction to 1884 refer to; what times in 1884 do you refer to there?

A. This is simply a sub-division of the pipe as set out in a certain deposition, which is made to this date, simply to show from the best information obtainable how much of the pipe as laid on December 31st, 1891, was laid in the original construction, and for reference to exact date, I should be obliged to refer to the deposition of Mr. Nicholson, I think, from which those figures were obtained.

Q. When do you understand that the original plant of the Knoxville Water Company was erected and completed?

A. I do not know that it has ever to this date been completed; sufficient work had been done on it so that from the best information obtainable in these books, water was furnished to some consumers somewhere about June or July, 1883.

Q. Now wasn't it open, and water turned on May 30th, 1883, and don't the books so show?

3632 A. I would not deny that fact, but I am not, at present in possession of just the item that would show it.

Q. And wasn't it determined at the time you and Mr. Wheeler made your estimates that the plant was constructed and completed—original construction—in 1882 and 1883, and does he not so state on page "292" of his deposition in Vol. "1" in this case?

A. He states that he understands that the original plant of the Knoxville Water Company was erected and completed in 1882 and 1883 or thereabouts.

Q. Well that is right isn't it?

A. I presume it is, not knowing anything to the contrary.

Q. Well now, Mr. Kimball, of what date is it that you determined from the books that there had been paid in by Mr. Sheldon and Mr. Ballou this sum of $142,142.82?

A. That is the aggregate of various sums paid by these gentlemen from time to time, commencing with the first payment by Mr. Ballou as shown on page "2" of the Loweree cash book, July 27th, 1882, and carried throughout this cash book—the last item in this Loweree cash book being on December 29th, 1883, when George P. Sheldon apparently paid in the proceeds of a twenty days' draft of $1100.00 amounting to $1092.95, together with sundry entries in the journal from the beginning, the last one being under date of June 30th, 1884, in favor of George W. Ballou, and the entries numerous throughout the entire cash and journal.

Q. Is the same true of Mr. Sheldon's account that it runs through the same period up to 1884?

A. The last entry in the Lowerce journal is under date June 30th, 1884, Expense Account to George P. Sheldon for amount of draft to January 23rd, 1883—$800.00.

Q. And it is from the amounts that you determined from your examination of the books that were paid in by these gentlemen from the inception up to June 30th, 1884, that you get this amount
3633 of $142,142.82?

A. It is the total amount shown by the Lowerce books that was paid into the treasury of either the Knoxville Water Company or Mr. Lowerce, which ever it was, as shown by the so-called Lowerce books.

Q. Well the books would show a very much larger sum paid in by Mr. Sheldon, wouldn't they, and Mr. Ballou than make up this $142,142.82?

A. Not as I understand your question, if it is taken in connection with my answer to the question from which this — drawn out.

Q. Well, to be more explicit Mr. Kimball, are there not a very great many more items than you have embodied in this $142,142.82 on the debits and credit sides of these gentlemen?

A. This statement will have to be taken in connection with my statement where I say that the books show that G. W. Ballou paid in cash at various times, after eliminating all credits, so much money; that George P. Sheldon did the same, &c., which aggregates $142,142.82, but that this is only after eliminating all transactions settled on these books themselves, and not carrying into it monies paid in or paid out on these books and balancing themselves.

Q. So that there are a great many items on both sides of the accounts of these gentlemen that are eliminated before you get at this result of $142,142.82?

A. Where debits and credits balance, they have not been considered in making up this account.

Q. And you have undertaken that process of elimination without the vouchers before you?

A. In exactly the same way that any bookkeeper would draw off a trial balance, as eliminating such items that balance each other in amounts, regardless of what those amounts consist of.

Q. Now I will ask you to examine exhibit "2" to Elbert Wheeler's deposition in this case entitled "Transcript of interest account from Ledger Oct. 31, 1883, to Dec. 31, 1891, and state if it does not
3634 appear therefrom that the following amounts were paid to George P. Sheldon:—

June 30, 1884, Sheldon Account	$9500.00
May 1st, 1885	11176.18
September 30th	1218.96
September 30th	127.25
December 9th	97.15
January 21st, 1886	2272.10
July 12th	6000.00
April 11th on Draft 1887	70.50
April 30th	204.03

June 18th	73.50
June 25th	6012.00
July 11th	86.00
August 6th	89.56
August 12th	71.10

and perhaps some other payments of like character?

A. I assume that they are, if you have read them correctly. I have not a copy of the exhibit nor have I checked them through as you have read them off.

Q. Well if you have any doubt as to their correctness, I will ask you to examine them?

A. I am willing to take your word for it.

Q. Now will you turn me to Mr. George P. Sheldon's account in the Journal and Ledger?

A. His account in the Journal extends throughout the whole of it, and if you will designate which set of books you want the Ledger account for, I will be pleased to do so.

Q. I have reference to pages "12," "105" and "240"?

A. George P. Sheldon's account appears on the Loweree Ledger pages "36" and "63" and on page "15" of the Martine Ledger, which I open and await your inspection.

3635 Q. Well now I call your attention to Mr. Sheldon's account on pages "41" and "42" of the Loweree Journal, and I will ask you if the principal items entering into the account of George P. Sheldon and George W. Ballou found on these pages have not been erased and some other amount written over the erasure?

A. The books show decided evidence of having been erased and the same or other figures inserted where those erasures occur.

Q. For instance, the item in Mr. Ballou's account, George William Ballou & Company to sundries $93,269.54 and another item of sundries $4,822.29 and another item of $33,819.54 all show evidence of having been erased and amounts written over them?

A. And another one of $59,000.00 above it; yes sir, that is a fact.

Q. And is it not true that on page "42" where it shows George P. Sheldon, Dr. $62,400.00 and then to water works bonds for net proceeds of bonds sold as per his statement, $62,400.00, I will ask you if the $62,400.00 is not over very plain erasures in both instances?

A. Very decidedly, and there can be no doubt as to such to any one with eyes.

Q. Now Mr. Kimball, I will ask you if these same amounts are not erased in like manner, or very light erasures on the Ledger?

A. I find here on page "36" of the Ledger, which is George P. Sheldon's account where now are written amounts corresponding substantially with those in the Journal.

Q. And with like evidences of erasures?

A. That is just what I said sir.

Q. Well now do you know any explanation of those erasures?

A. I know nothing about them either one way or the other.

Q. Well the Ledger shows the same kind of erasures in Ballou's account, does it not?

A. Yes sir there are erasures in Ballou's account and very decided ones.

3636 Q. Now did you find that any other money had come into this plant up to the date of the close of the Loeree administration except $142,142.82 that you have ciphered out from the books was put in by Ballou and Sheldon?

A. Nothing but what as before stated was settled within the limits of the book. There are various evidences of borrowed money, which was paid back within the limits of the books, and being settled of course were not used to draw off a trial balance at the close of the books.

Q. Didn't you find a number of items such as sales of lead to the Knoxville Gas Light Co. and the sale of horses &c. making in all about $907.43—didn't you find evidences on the book of an additional item of that sort?

A. Without confining myself to exact figures, there were sundry items for sales of material for which the company received the money, which however, was credited to some of the accounts which were carried forward, making its trial balance and by so much reducing those accounts and thus obtaining the balance, the only difference being that had these been treated as cash received to any amount, it would have been equivalent to increasing the accounts charged against those which were carried forward and which were credited within these books by this amount.

Q. What amount was received from operation of the plant during this time?

A. So far as the Loweree books are concerned, there appears to be nothing which could really be charged to operation of the plant as I now recall.

Q. Now I will ask you Mr. Kimball, if the books do not show that for the year 1883 there were collections by this company of $3,438.88, being $1,908.00 from the city on hydrants and $1,530.80 from consumers?

A. Not on the Loweree books; there could be, and I think quite likely are on the Martine books.

3637 Q. That is in the year 1883 I am asking about?

A. That is the year I am talking about and I have already informed you and am on record as saying that the Martine books commence in 1883 and dove-tail into the Loweree books, and that all operation is apparently on the Marine books during that period covered by the two sets of books jointly.

Q. Whether in the Martine or Loweree books, my question is didn't this company realize the amount I have stated from operation of the plant during the year 1883?

A. Those figures sound very natural to me; they realized some amount, if not actually those figures in 1883.

Q. And didn't this company in 1884 realize from the city on hydrants $3,917.55 and from other consumers $6,349.56, and from another account $23.21, making an income for that year of $10,290.32?

A. I can answer that generally by saying that not only that year

but all years since then they received more or less income the total of which is set out in my deposition up to Dec. 31, 1891.

Q. Will you show me the total on the books; is there any showing on the books of that total?

A. I think so sir; that is where I obtained my information.

Q. Look at page "90" of the Martine Journal?

A. On page "90" of the Martine Journal, balance after posting Stock account $208,735.67 and turning to the account of Water at page "210" of the Martine Ledger and deducting the Stock account of $5,183.86 leaves as the total actual cash received from water rents $203,551.81 as given in my deposition on yesterday.

Q. Now isn't that $5,183.86 for uncollected water rents at that date?

A. That is what it is assumed to be, yes sir.

Q. And the books show the water account to be $208,735.67 instead of that amount $5,183.86 as you have done in making your estimate in this case?

A. The Journal shows Water to Profit and Loss balance
3638 after posting Stock account $208,735.67 while in my deposition I show cash received for water $203,551.81.

Q. And ignoring the $5,000.00 existing asset?

A. In dealing with cash account for the purpose of determining a trial balance it has to be ignored.

Q. Now Mr. Kimball, it appears from the books of this company that there was paid on interest account between 1883 and the close of 1891 $115,349.50, does it not?

A. Yes sir.

Q. That would amount to 6% annual interest on about $223,000.00 to $225,000.00 for 8 years?

A. I have not calculated it.

Q. Well I will ask you if in fact it wouldn't be 6% annual interest for 8 years upon $240,000.00?

A. You are as well able to calculate that as I am, General.

Q. Well Mr. William Wheeler has stated that your estimate and his of the fair construction cost of this plant up to January 1884 was $128,063.58, adding however that this valuation is subject to deduction of any part of the engine house, as I found it in 1890, of the boiler house as I found it there at that time, tool house, coal chute, store house and fence, and indeed any part of the machienry and appliances that may have been added subsequently to 1884, and he says further that this amount includes 20% added for engineering and contractors' profits &c. Now I will ask you if included in this sum is not the reservoir put at $33,000.00?

A. I could not tell you sir.

Q. Well I will ask you to look at the statement of William Wheeler page "294" where he sets out the te-ms of this estimate, and state whether he does not there show that it is there included in this $128,000.00 at $33,000.00?

A. It appears to be in his statement.

Q. Now I will ask you if in that estimate of $128,000.00 if cast

iron pipe is not put in at $35.00 per ton with 20 per cent.
3639 added onto the value of the pipe, making $42.00 per ton for the pipe?

A. Are you referring now to the statement on pages "293" "294."

Q. Yes, I am referring to construction up to January 1st 1884, your estimate there being $63,093.12 of street mains and appurtenances included in this $128,000.00.

A. Pipe in original construction, as shown in our joint analysis of the fair construction cost of this plant, is placed at $35.00 per ton.

Q. And 20 per cent. is added to that cost in making up your final statement?

A. 20 per cent. is added to the entire plant, including cast iron pipe, in all of the estimates of fair construction cost.

Q. Well I will ask you if it is not a fact Mr. Kimball that common brick laid in lime mortar is not included in this estimate with the 20 per cent. at $15.60 a thousand?

A. Common brick, laid in lime mortar in our joint analysis is placed at $13.00 a thousand.

Q. Plus 20 per cent.?

A. As before stated, 20 per cent. is added to the cost of the entire works for the purposes stated.

Q. And is it not considered that other classes of brick-work are put in at a price on the same plane as that of common brick.

A. All brick work is included in our analysis at what we considered to be fair prices for that kind of brick and quality of work.

Q. Well now Mr. Kimball, what relation did Mr. George P. Sheldon bear to this plant during the period of construction and for some time afterward as appears from the books of this company?

A. I can draw no conclusions from any knowledge that I have, but the books would appear to show that he was financing the company at that time.

Q. What relation did Mr. George W. Ballou bear to this company?

A. Practically the same, I should judge, and a little in advance of Mr. Sheldon, and that Mr. Sheldon subsequently settled
3640 with Mr. Ballou and later seemed to be furnishing the funds without Mr. Ballou's assistance.

Q. Now if they got $142,142.82 excluding from consideration the revenues received from this plant in 1883 and 1884 and up to the 1st January, 1884 into the construction and operation of a plant that Mr. Wheeler and you estimated at $128,000.00, putting the reservoir in at $33,000.00, the cast iron pipe at $35.00 per ton, plus 20% and common brick work at $13.00 per thousand, plus 20% and other prices in proportion, don't you think that they got a rather good slice of what they put in?

A. Your opinion is as good as mine on that question, General.

Q. Well if that is so it looks like there had been a pretty good leak during that administration.

A. I think if you have followed my analysis of the old Loweree books, you will see that I have only claimed as construction costs appear thereon $127,718.57, and show in detail the various accounts going to make up this sum.

Q. But even in the claim that they make on the reservoir, they are about $10,000.00 less than you and Mr. Wheeler estimate it in your $128,000.00, aren't they?

A. In this analysis of the Loweree books it appears that reservoir labor is accounted at $12,139.23 and reservoir material at $11,189.97 or a total of $23,329.20 as the showing of the Loweree books for the reservoir at this time.

Q. Well isn't that in the neighborhood of $9,000.00 or $10,000.00 less than you and Mr. Wheeler estimated in your estimate of $128,000.00 of construction at this time?

A. Mr. Wheler and myself did not make that estimate; that appears in Mr. Wheeler's own statement and not in our joint analysis for while the reservoir in our joint analysis is estimated at $27,500.00 that includes the entire reservoir, and it is apparent from the entries in the Martine books that in addition to this $23,329.20 shown as paid in the Loweree books, considerable sums were paid later
3641 on this account, making up the total cost which is what we estimated on, and not a partial cost as evidenced by the Loweree books.

Q. So then it results in this, in order to get $128,000.00 for the original construction you have had to embrace a part of construction of subsequent years, doesn't it?

A. As before stated, I don't know where in my testimony I have shown the original cost at $128,000.00, and I certainly cannot attempt to interpret Mr. Wheeler's deposition.

Q. Well Mr. Kimball, Mr. Wheeler has estimated it at $128,000.00 up to January 1st, 1884, and he has included, as he states in that statement, the reservoir at $33,000.00. Now if the reservoir hadn't been completed at that time, he has embraced in that estimate some construction of subsequent years?

A. He evidently, if you will permit me to interpret some other person's deposition, has embraced in that $128,000.00 some accounts chargeable to reseryoir that was done in other years, and has left out some of the acounts chargeable to qther items that was done at that time, otherwise he could not have arrived at that result.

Well did you help him to make that statement?

A. I did not.

Q. He is as capable of making a statement as you are, up to that time?

A. I don't pretend to compare myself with him at all sir.

Q. At any rate there is $10,000.00 more in his estimate of $128,000.00 of construction cost up to the 1st of January, 1884 than is claimed to have been expended on the reservoir under the books of the Loweree administration, is there not?

A. If you interpret his statement here to mean what is shown by the Loweree books as original construction, that is so; but I am not prepared to admit that even that sum of the original
3642 construction might not have been done by items shown in the Martine books, and it is certainly a fact that if he has over estimated one item as of that date, he must have under estimated other items; if your intention is to make his analysis comparable

with the books, which is not however a fair assumption, as the books were not followed in any respect.

Q. Mr. Kimball, what is the total amount of construction up to December 31, 1891, as you gather it from the books?

A. The total construction accounts as carried from the Martine books into the first of Elbert Wheeler's books as Treasurer amount to $210,071.75.

Q. Now you mean by that that you gather from the books how much has been spent in construction?

A. In the Knoxville Water Company and charged to so-called construction accounts on the Martine and Loweree books.

Q. Well now what did you and Mr. Wheeler estimate the construction cost up to that date to be?

A. Our joint analysis includes the North Knoxville plant, in addition to the Knoxville plant as of December 31, 1891, the total including the 20% allowance is $257,911.33.

Q. Now Mr. Kimball, in getting at that $210,071.75 these same altered entries in the books were involved that we have already spoken about in getting at the $142,142.82?

A. As I understand, these altered entries as you call them were in the accounts of Ballou and Sheldon and not in the construction accounts; therefore they do not in any way affect the construction account except as they are used to show that the account balanced.

Q. Well you proceed and add to the $142,142.82 taking it as correct, don't you in order to get your $210,071.75?

A. I proceed to add the $142,142.82 as represented cash paid out to what is shown as cash paid out in the Martine books to get at this $210,071.75, but that has *bo* connection with the cash
3643 paid in or with Ballou's or Sheldon's account.

Q. Well now isn't this a fact that nearly all the accounts you refer to as construction are so mixed up with what is apparantly operating expenses, that it is impossible for you to state with any sort of precision what was construction account?

A. That certainly is a fact, as I have stated, but that doesn't change the statement that certain sums of money have been spent, if the books are of any account at all and that in my opinion the books must be adopted as they are, or discarded entirely, because if th-se books are of any value, they show a total expenditure throughout them, amounting to, with cash on hand December 31, 1891, $435,850.88, and that must be distributed either to construction or operation, and cannot be held up in the air, or any part of it.

The further taking of this deposition is adjourned until Monday January 25th 1904 at 1:30 o'clock P. M.

3644 MONDAY, *January 25th*, 1904—1:30 p. m.

Continuation of cross-examination of F. C. KIMBALL.

By G. W. PICKLE:

Q. Mr. Kimball, do you know whether this Worthington pump is brass lined or not that you have in your plant here at the River station?

A. The water end is brass lined, yes sir.

Q. Do you know that to be a fact?

A. The plunger casing is solid brass or composition; yes sir I have been inside of it.

Q. What quantity of water is pumped each 24 hours ordinarily by this Worthington pump?

A. I believe our present consumption ranges somewhere about two and three-fourth million gallons per 24 hours, and most of it at present is being done by the Worthington pump.

Q. What has it been heretofore, greater or less than that during the last two years?

A. Well since the Worthington pump has been installed, the consumption has run from—speaking now of single days—something less than two million, on a Sunday perhaps to *to* 2 or 3 days that I remember, upwards of six million gallons, with the average for a month, or for the year of about two and three-fourths to three million gallons.

Q. Now have you a record of the number of hours that the pump is run per day?

A. Yes sir.

Q. How many hours is that?

A. I wouldn't state that from memory, but I will get the record if you desire.

Q. Yes I would like to have it.

A. What date do you want?

Q. Well when you are pumping from two and three-fourths to three million gallons a day, what is the time?

A. This record, the heading "Pump D," is the record of
3645 the Worthington pump, and starting on February 1st, 1901 the number of gallons pumped was 2,777,000 approximately in 17 hours and 30 minutes; the next day it is 2,568,000 in 18 hours, and so on down through the month; on February 15th, about 2,500,000 gallons in 15 hours.

Q. Now I will ask you whether that is substantially the way it runs through the record?

A. It depends very largely upon conditions. Turning to June 5th, 1901, 3,100,000 gallons in 15 hours; on June 17th, 2,300,000 gallons was pumped in 15 hours and 20 minutes, while on June 15th, 2,600,000 gallons was pumped in 11 hours and 30 minutes, and on June 14th, 2,600,000 gallons in 14 hours and 30 minutes. Turning over farther there were 2,100,000 gallons pumped in 9 hours—that was on November 4th, 1901, then there is 1,200,000 gallons pumped in 6 hours and 15 minutes on Nov. 10, 1901, which was probably on a Sunday, and so on right through. Here is the whole month of December, 1901, where the pumping was done entirely by the Worthington pump, and an average for the month of 2,657,000 and the daily average run 13 hours, 21.9 minutes. Going back to November where I know that the Worthington pump was used for the entire month 2,234,000 gallons is the daily average, while the daily duration of pumping average is 9 hours 43½ minutes and so on through the entire record.

Q. Now what steam pressure is carried at the River station?

A. Taking the last 2 months mentioned of November and December, 1901, the average steam pressure is 125 pounds as given in the record. This I will state is the pressure at the engine and not at the boiler, there being a difference of between 4 and 5 pounds, the boiler pressure being that much higher.

Q. Mr. Kimball, you admit I believe in your examination in chief that you discovered a mistake of 46,000 vitrified brick at the filter station in your and Mr. Wheeler's estimate. I will ask
3646 you if you have compared your estimate of vitrified brick with your purchases of vitrified brick from the Knoxville Brick Company, and whether you are not still short more than 50,000 in your purchases as compared with your estimate?

A. We are not short I think 50,000; we are short close to 40,000 as my recollection goes, even after allowing for that mistake of 46,000.

Q. Mr. Kimball, on page "56" of Elbert Wheeler's deposition in response to a question calling upon him to give a tabulated statement of the number of services in this entire plant on certain dates and also the metered services, he gives the total number of services as of date March 31, 1901, at 4,323. I will ask you if that number isn't a mistake, and if in point of fact it is not about 3,901.

A. No sir, that 4,323 is correct within 8; but there was a discrepancy of 8 services between what the analysis of Mr. William Wheeler and myself shows and what the Treasurer shows. The difference I think, which you believe you have discovered, is in leaving out of what the Knoxville Application Book shows the number which are contained in a separate book of West Knoxville services, which combined, I think you will find make the number given there or within 8 of it.

Q. So you think his number is correct as given there?

A. I think so, yes sir, within that limitation. I can look that up for you very quickly if you would like to be entirely satisfied on the matter.

Q. No you need not mind it. Well now how many do you estimate of that number 4,323 were metered services?

A. I have just counted the number of metered bills rendered April 1st, 1901, and assuming I have made no error in the count there were 358 bills rendered for metered services on that date of which 269 bore meter rental, indicating that those 269 were furnished through meters owned by the company, while the
3647 balance were furnished through meters or indicators owned by consumers; the difference between this number 269 and the number of meters given as belonging to the company 275 or 270 in number, quite likely represent services which were off at this time, or for some other reason bills were not rendered.

Q. Do I understand you that there are 3,900 fixture services and in addition to that this 350 odd metered?

A. I think if you want to confine me to the actual figures General, I had better get the books and look it up. The total number of services given, as I understand it, should include all services both

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metered and fixture rates which is somewhere in the vicinity of 4,300 at that particular date.

Q. And then it does include the metered services?

A. Yes sir.

Q. Mr. Kimball, what was done with the 12 inch pipe that came out of the L-B gravity line—where was it placed in this plant?

A. When it was taken out of the L-B gravity line it was placed in stock; the exact location where it was later laid I am unable to state, but I think it was laid principally on Jacksboro Street a year or two, or possible within a year from the time it was taken up.

Q. Well don't you know that it was laid within a year afterward and embraced in Mr. Wheeler's estimate of 1901-1902, and don't your supplies account there show that you had no such quantity of 12 in. pipe on hand at the close of the year 1901-1902?

A. Referring to the Pipe Construction Record Book I find that in the year ending March 31, 1902, about 7,546 feet of 12 inch pipe was laid, and I think without doubt nearly, if not quite all that came up from that gravity line was laid in that year.

Q. Well now will you indicate where it was laid from your books?

A. The locations where this 12 inch pipe was laid that year are on Jacksboro Street from 5th Avenue northerly along the
3648 K. & O. Railroad right-of-way and its extensions being the line that was laid to the Southern Railway shops, that line appearing to cover all of the 12 inch pipe that was laid that year.

Q. I notice in your Supplies Account of March 31st 1901 3327 feet of 12 inch pipe at 87 cents making $2911.13. Was that this 12 inch pipe that came out of the gravity line?

A. I presume the larger part of the item which you have read is composed of the pipe that came out of this gravity line, although not all of it, we having at that time some on hand in addition to that, but how much I could not state.

Q. You put this pipe into the re-construction of 1901-1902 at the price of new pipe, didn't you?

A. Yes sir, and at weights of our standard—this pipe however being of considerable heavier weight.

COMMISSIONER: Well it was in the supplies account for the year we have in question?

A. Yes sir.

Q. And was put in there at the price of new pipe only at your regular weights when in fact it weighed more?

A. Yes sir.

Q. Mr. Kimball, I find a statement of uncollected balances on the books March 31, 1901, attached to the supplies account that you have handed me, and as a result it shows, does it not, that of uncollected balances on fixtures there was only $153.48 while from city hydrants there was a balance for a quarter of $2,292.28 and on meters $5,408.16 making the $7,853.92 balance that we have heretofore been talking about. I will ask you to examine the paper and see if that is not true?

A. This balance of $7,853.92 which is in ink on this stock account

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is what is indicated as the "Stock Account" in the Treasurer'- Ledger of this same date.

Q. Well isn't it composed of the items which I have above indicated?

3649 A. I assume that you have read them correctly, yes sir.

Q. Well it is true that only $152.48 were balances or amounts due on fixtures, isn't it, at that time?

A. That does not necessarily follow that this $153.48 is on fixtures. In fact in looking it over I see two at least that I recognize as old meter accounts. This balance of $153.48 is all the uncollected accounts there were on the books March 31, 1901, that were not what might be termed current bills, and may, and do include uncollected meter accounts as well as fixture accounts.

Q. Well that amount wasn't subject to any abatement was it; they were too old for that?

A. If by "abatement" you mean discount, they were not, but they were subject to a considerable abatement, quite likely, as accounts not possible of collection and more or less of them before now have been charged off.

Q. Well about how much have been charged off?

A. Well that would be impossible to state without going over every account and comparing it with the books; they have extended from that time down to this, and it is possible some of those are still carried as un-collected accounts.

Q. Well now as to the amount that was due at this time for city hydrants $2,292.28. That was not subject to any discount, was it?

A. That was paid in full, and owing to the date that they paid their hydrant rental, the same amount for hydrant rental will be found carried forward year by year.

Q. Now as to the meters amounting to $5,408.16, that was for current meter service, wasn't it?

A. That was for bills which were rendered as of April 1st, for use of water prior to that date, for either one or three months.

Q. And that was collected, wasn't it?

A. The larger part of it presumably was subject to discount for prompt payment, although in that amount there may have been accounts which have not yet been settled; if so they are com-

3650 paratively few in number.

Q. What discount is allowed on meter service?

A. 5% if paid within 10 days of the date of the bill.

Q. Now Mr. Kimball, going to the supplies account as of date March 31, 1902, I notice under the head of Pumping Station Stock an item of this kind: "2 Davidson Compound Single Pumps, detached say $500.00."

Mr. CALDWELL: I take it if any of these accounts for 1902 are to come in, that we will have the right to bring the whole matter in, and we object to anything after March 31, 1901.

Mr. PICKLE: What I wish to show is that this stuff is old junk and it is used to simply swell that account.

Sustained. Exception taken.

Q. Now Mr. Kimball, I want you to state what made up the uncollected balance on the books March 31, 1902, that is how many old accounts, how much hydrant rental and how much meter rental, just as the items were on the other account?

A. Balance of Stock account carried forward as of March 31, 1902, amounting to $8,919.05 is made up as follows:

Uncollected balances as shown on Stock Account.....	$162.46
City hydrants, 1/23 to 4/1–02.....	2,292.28
Meters	6,464.31

Q. And the same remarks will apply as regards discounts &c as did the balance on hand at the end of the preceding year, wouldn't it?

A. All the remarks which I made, explanatory or otherwise of the balances or stock account of March 31st 1901, are strictly applicable to this year.

Q. Mr. Kimball, I will ask you whether or not during the
3651 years 1900-1901 and 1901-1902 if you have assisted Mr. William Wheeler or other persons in making calculations with reference to giving evidence, or for other purposes in regard to other Water plants, or controversies than this one?

Mr. CALDWELL: We object to the question as wholly irrelevant.

Over-ruled. Exception taken.

A. I have not assisted Mr. William Wheeler, or any one else during that period in making any calculations, or preparing evidence to be used in any other case.

Q. Well have you any other salary than the $2400.00 that you get out of the Knoxville Water Company, or had you during those years or other compensation, and if so, for what work or purpose?

Mr. CALDWELL: We object to the question as irrelevant.

COMMISSIONER: You may answer, but you need not tell how much.

A. $2400.00 a year is all the salary which I receive, or have during those years.

Q. Well now Mr. Kimball at one of the adjournments in this case, you remember that you expressed the opinion that it would very material- *to* discommode you, that you ought to be in Florida that some work ought to be done there at a date to which we were about to adjourn. I presume you have the fact in mind. What work did you have in mind at that time?

Mr. CALDWELL: We object to the question on the ground that it don't apply to the date of March 31, 1901.

COMMISSIONER: I sustain the objection as he has already answered as to the year I think we are considering.

Q. Mr. Kimball, do you say now that your entire service and time were given to the water company during the years 1900-1901 and
1901-1902, and that you did not give a portion of your time
3652 and service to other purposes?

A. That is not the question you asked me nor is that the question I answered.

Q. Well will you answer that question?

Mr. CALDWELL: We object to the question so far as it applies to the years 1901-1902?

COMMISSIONER: I sustain the objection with regard to the years 1901-1902.

A. Well that depends on what you call giving my time and services to this company. During the year ending March 31, 1901, I was granted a vacation, and during that vacation I did some other work which had no reference whatever to this company.

Q. Was that during 1900-1901?

A. It was.

Q. What was the length of that vacation?

A. One month.

Q. Where did you spend it and what was the work you were engaged in?

A. I claim sir that that is my private affair which has no relevancy to this case, and shall refuse to answer it unless so ordered by the Master.

Q. What compensation did you receive for that work?

Objected to by Counsel for complainant.

COMMISSIONER: I will sustain that as he said he had a vacation of a month.

Q. What time in the year was it you had that vacation?

A. It commenced the latter part of January, 1901, and run a month bringing it down to the latter part of February.

Q. Now I will ask you if you didn't do like work during the year 1901-1902?

A. I did not.

Q. Did you give your entire services during the whole year to the exclusion of other employment to the water company during 1901-1902?

A. I cannot recall a single day that I was not at work for
3653 the Knoxville Water Company unless you call about 5 days' vacation which I had, being out of their employ during that time.

Q. Well you state you were given a vacation of a month in 1900-1901. How long in fact were you away?

A. A month.

Q. Not any more than or any less than a month?

A. It might have been 2 or 3 days more or less, but approximately it was a month.

Q. Who granted you that vacation?

A. The Treasurer of the Knoxville Water Company on my request.

Q. You drew your salary from the Knoxville Water Company during that month?

A. I did most certainly.

Q. Who performed your duties during your absence?

A. They were cared for by the cashier at the office, Mr. Roberts,

assisted by the chief engineer at the pumping station, Mr. Durham, and supplemented more or less by correspondence with me while I was away.

Q. And you decline to state where you spent the vacation, what you were doing, for whom you were working, and what you received for it?

Mr. CALDWELL: We object to the question. The record shows what he has done.

Sustained.

Redirect examination by Mr. CALDWELL:

Q. Mr. Kimball, you were asked in your cross examination about your active participation in this case. This record shows that Mr. Nixon's examination closed on the 1st of December, 1903. Do you know of any sitting in this case, when testimony was being taken, when Mr. Nixon was absent.

A. I don't recall any; I think he has been here about all the time.

Q. The vote of Directors on the question of authorizing
3654 bonds of the company's officers to be paid for, was called for by Counsel for the city. Was that record tendered?

A. The record was tendered and Counsel for city examined it.

Q. I will ask you to put it into the record now.

It is agreed that the vote of the Board of Directors authorizing the expenditure of premium for surety bonds may be considered as read without copying the same.

Q. The high pressure records were called for by Counsel for city; were they tendered?

A. Meaning the automatic or self-recording gauge records, showing the pressure at this office of both the high and low service, they were, and examined by them.

Q. You were asked about erasures in the Loweree books. Where such erasures were made, do the insertions or the new writing appear to be in the same hand-writing as the original hand-writing used on the pages of those books?

A. They appear to be, yes sir.

Q. Do you know who made those erasures?

A. I have not the slightest idea.

Q. Do you know who kept the books?

A. I don't know that even except as I might infer from the books themselves and the parties who received salaries, and even that wouldn't apply to the Loweree books.

Q. Now you have been asked also about the amount of pumping done by the Worthington engine. I want to know the capacity of the engine, its duty, its duty test, and the reason for running it below its highest capacity?

A. After this pump was erected, there were made, under my personal supervision, three different duty tests of it, one of which covered a full 24 hour run, during which it pumped six million, seven hundred and some odd thousand gallons. This test was made

to see if it complied with the contract requirements, and so
3655 far as the capacity went, it did. At that time it did not come up to its duty guarantee, which means the pumpage of a given quantity of water by the consumption of a given amount of steam. The Worthington people sent a man down to see what was the trouble with it, and after considerable work by him we made another duty test running this time 9 hours, during which it came up to its contract requirements both as to capacity and duty. About a year later than that another duty test was made by the students at the University of Tennessee, as a practical lesson to them, over which I had supervision as to the records and the running of the pump, and that test also bore out the contract requirements, both as to capacity and duty. As regards the reason for operating at times under speed this is more as a matter of economy than anything else. We are obliged to keep both a night and day gang on hand, and we divide up the work between them, and it makes it easier for them to run two-thirds or three-fourths speed than it does to run full speed, and the coal consumption is no greater per million gallons at low speed, provided it is not too low, than at full speed, while the manual labor is considerably less. We can also operate the filter plant which depends for its speed of operation on the speed of the pumps much less, so far as the use of coagulent or alum is concerned at a three and a half to five million gallon speed than we can operate at six million gallons, especially with certain types or character of the water, and it more an account of the economics at the filter plant than any other reason that we don't run it to capacity except when emergencies may require.

Recross-examination by Mr. PICKLE:

Q. Mr. Elbert Wheeler, the Treas. of this Company was present during the examination of Mr. W. M. Nixon in this case was he not?

A. He was present during some of it; I am in doubt about his being present during all of it.

Q. He has examined the whole of Mr. Nixon's deposition
3656 hasn't he?

A. I could not say as to that; I think not.

Q. How long was he here during the examination of Mr. Nixon in the taking of the evidence for the defense in this case?

A. I could not state sir, I kept no time of his arrivale or departure.

Q. Well he made more than the trip from Boston to be present *to be present* during the examination didn't he Mr. Kimball?

A. He was here, to the best of my recollection, during Mr. Nixon's direct examination and I think he made two trips here during his cross examination, but how long he staid or how much of that cross examination it covered, I could not state.

Q. Mr. Kimball, you kept in touch with the Boston office during the examination of defendant's witnesses in this case and furnished them with copies of the evidence from time to time?

A. I don't recall of sending them copies of any of the evidence

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except a copy of Mess-. Nixon and Brown's replacement valuation which I sent to Mr. William Wheeler and some copies of the correspondence which Mr. Brown put into the record which I also sent to Mr. Wm. Wheeler; other than that I sent them no copies of the testimony so far as I recall.

Q. Well you took it up there with you when you went up there to consult with them?

A. When I went to Boston last September or October I did—all that had been given to that time.

Q. Now in regard to the erasures in the Loweree books, they occur mostly in the accounts of Mr. Ballou and Mr. Sheldon, don't they?

A. In one page of the Journal—perhaps two pages—and in the corresponding entries in the Ledger relating to Mess-. Ballou and Sheldon there are erasures. I have not examined the books to see whether there are any more or not, as it did not particularly interest me.

Q. There are numerous erasures on the accounts of these two parties named on the books aren't there?

3657 —. ——these two pages, there are several; I don't know what you would term numerous.

—— ——.

Stipulation Relating to Hydrants in the ex-Tenth Ward (so-Called) of Knoxville.

The territory, lying East of the City of Knoxville, became a part of said City under the operations of Chapter 113 of the Acts of 1891, which Chapter was approved, March 25th. 1891. At this time there had been laid sundry pipes within the limits of this territory, and connected thereto were seven hydrants, which at this time were paid for by subscription of citizens in this section. Upon coming into the City the rental of these hydrants were assumed by the City of Knoxville through the Board of Public Works, upon condition that one of the Hydrants then situated at the corner of Magnolia and Winona Avenues should be changed, and located upon the corner of Magnolia Avenue and Bertrand Street, and this was done in Feb'y 1892. The Board of Public Works further ordered nine additional hydrants in this territory, making a total of sixteen, and pipe required to connect up these hydrants was laid and the hydrants set in Sept. and Oct. 1892. Under the provisions of Chapter 56 of the Acts of 1893, approved March 23rd, 1893, the Act above quoted as being approbed March 25th. 1891 was repealed, and while the City of Knoxville paid hydrant rental upon these 16 hydrants while this territory was a part of the City, they refused to pay it after the repeal of Chapter 113 of the Acts of 1891. The Water Company entered suit against the City to compel the payment of hydrant rental upon these hydrants, but the Court

3658 held that the City was not liable for such Hydrant rental after this territory had been set off from the City. So far

as any proof can be produced, neither the City nor the Water Company had anything to do with the admission or exclusion of said territory.

Stipulation.

It is stipulated between the parties that any part of the printed record of Cause #18,354 in the Supreme Court of the United States, may be read by either party to this record, subject to objection for incompetency and irrelevancy.

And it is further agreed that the opinion of the Supreme Court of Tennessee was affirmed in said cause by the United States Supreme Court, stated in the opinion of that Court, which is filed and may be used in this case, and that said cause has been remanded to the Supreme Court of Tennessee, and final entry made in that Court pursuant to the opinion of the Supreme Court of the United States.

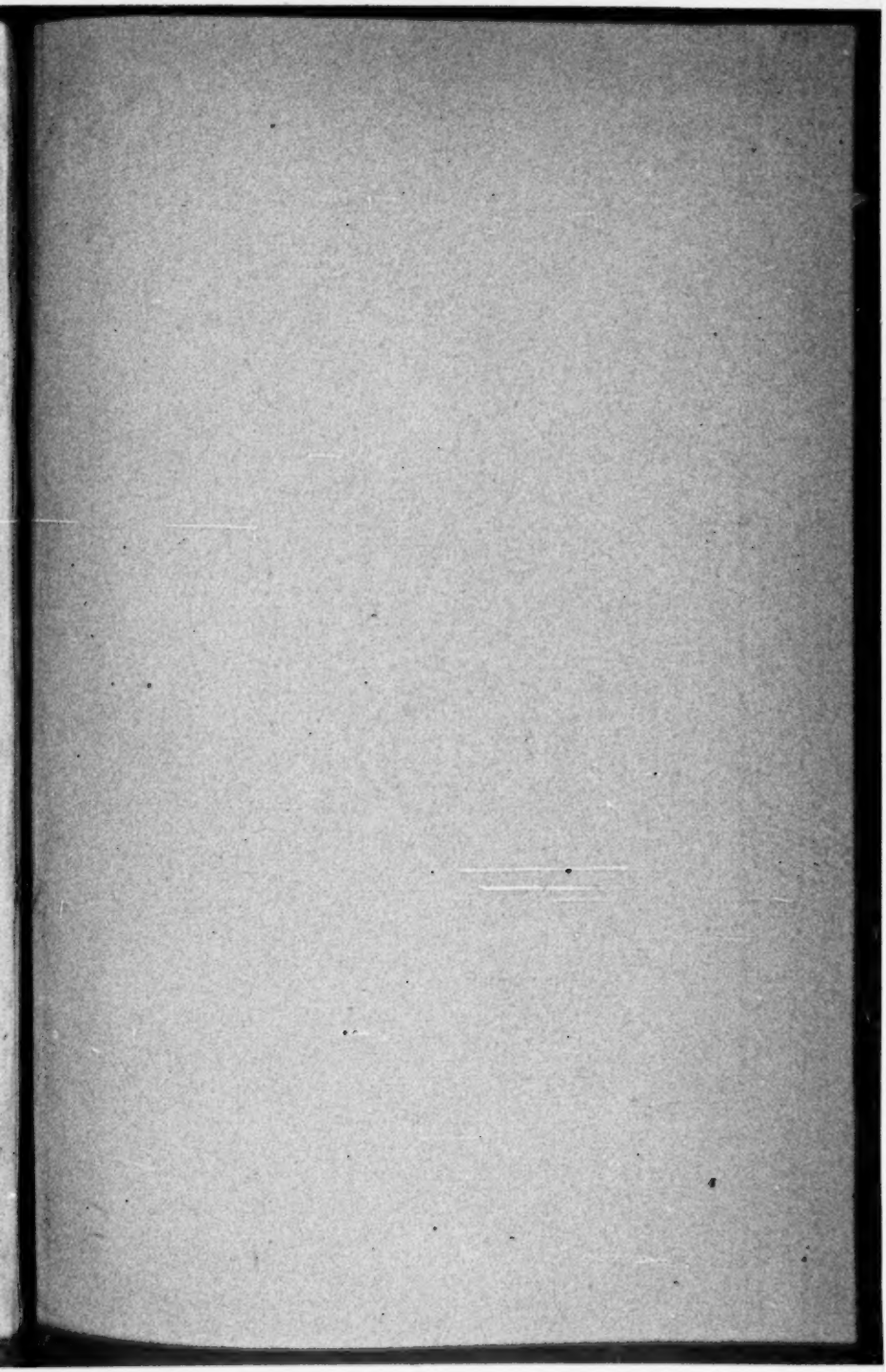
This was all the testimony introduced upon this cause.

3659 UNITED STATES OF AMERICA,
Eastern District of Tennessee, ss:

I, D. L. Snodgrass, Clerk of the Circuit Court of the United States for the Eastern District of Tennessee, do hereby certify that the foregoing 3658 pages of matter embodied in eight volumes, labeled The Knoxville Water Company, Plaintiff, *vs.* Mayor and Aldermen of City of Knoxville, Defendant, numbered one to eight consecutively, contain a full, true and perfect transcript of the record and proceedings had in said Court for the Northern Division of the Eastern District of Tennessee in the cause of the Knoxville Water Company, Plaintiff, *vs.* The Mayor and Aldermen of the City of Knoxville, Defendant, No. 1260 in Equity, as the same appears of record and on file in my office, together with the original citation and the marshall's return thereon in said cause.

Witness my hand and the seal of said Court at office in Knoxville, Tennessee, within said District and Division hereto set upon this the 23d day of January, A. D. Nineteen Hundred and Seven (1907).

[The Seal of the Circuit Court, District of East. Tenn.]

D. L. SNODGRASS,
Clerk of the Circuit Court of the United States for the Eastern District of Tennessee.

Endorsed on cover: File No. 20,554. E. Tennessee C. C. U. S. Term No. 217. The Mayor and Aldermen of the City of Knoxville, appellant, *vs.* Knoxville Water Company. Filed January 30th, 1907. File No. 20,554.